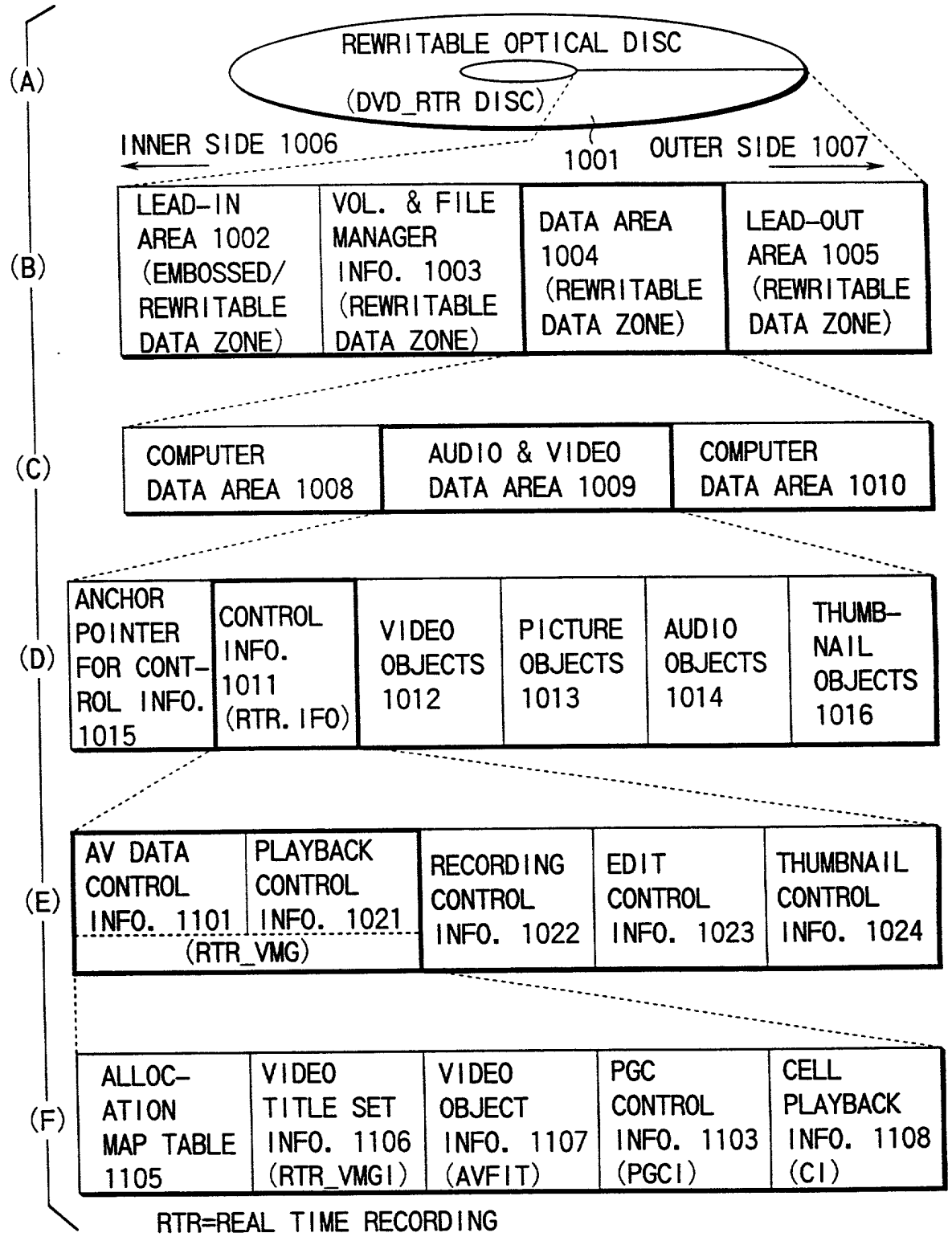
(A)
REWRITABLE OPTICAL DISC
(DVD_RTR DISC)
INNER SIDE 1006
1001
OUTER SIDE 1007
(B)
LEAD-IN AREA 1002 (EMBOSSED/ REWRITABLE DATA ZONE)
VOL. & FILE MANAGER INFO. 1003 (REWRITABLE DATA ZONE)
DATA AREA 1004 (REWRITABLE DATA ZONE)
LEAD-OUT AREA 1005 (REWRITABLE DATA ZONE)
(C)
COMPUTER DATA AREA 1008
AUDIO & VIDEO DATA AREA 1009
COMPUTER DATA AREA 1010
(D)
ANCHOR POINTER FOR CONT-ROL INFO. 1015
CONTROL INFO. 1011 (RTR. IFO)
VIDEO OBJECTS 1012
PICTURE OBJECTS 1013
AUDIO OBJECTS 1014
THUMB-NAIL OBJECTS 1016
(E)
AV DATA CONTROL INFO. 1101
PLAYBACK CONTROL INFO. 1021
(RTR_VMG)
RECORDING CONTROL INFO. 1022
EDIT CONTROL INFO. 1023
THUMBNAIL CONTROL INFO. 1024
(F)
ALLOC-ATION MAP TABLE 1105
VIDEO TITLE SET INFO. 1106 (RTR_VMGI)
VIDEO OBJECT INFO. 1107 (AVFIT)
PGC CONTROL INFO. 1103 (PGCI)
CELL PLAYBACK INFO. 1108 (CI)
RTR=REAL TIME RECORDING

FIG. 1

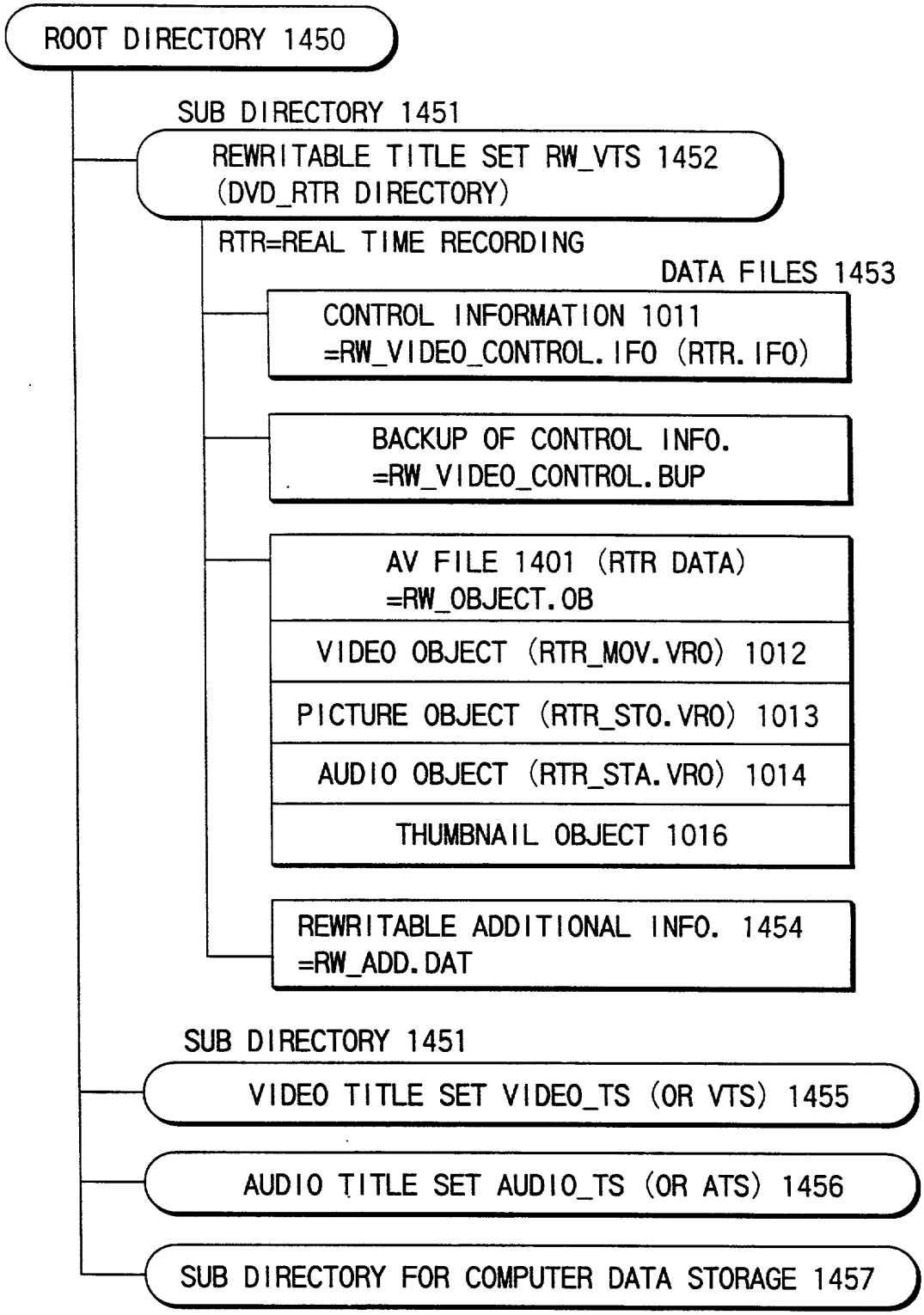
ROOT DIRECTORY 1450
SUB DIRECTORY 1451
REWRITABLE TITLE SET RW_VTS 1452
(DVD_RTR DIRECTORY)
RTR=REAL TIME RECORDING
DATA FILES 1453
CONTROL INFORMATION 1011
=RW_VIDEO_CONTROL.IFO (RTR.IFO)
BACKUP OF CONTROL INFO.
=RW_VIDEO_CONTROL.BUP
AV FILE 1401 (RTR DATA)
=RW_OBJECT.OB
VIDEO OBJECT (RTR_MOV.VRO) 1012
PICTURE OBJECT (RTR_STO.VRO) 1013
AUDIO OBJECT (RTR_STA.VRO) 1014
THUMBNAIL OBJECT 1016
REWRITABLE ADDITIONAL INFO. 1454
=RW_ADD.DAT
SUB DIRECTORY 1451
VIDEO TITLE SET VIDEO_TS (OR VTS) 1455
AUDIO TITLE SET AUDIO_TS (OR ATS) 1456
SUB DIRECTORY FOR COMPUTER DATA STORAGE 1457

FIG. 2

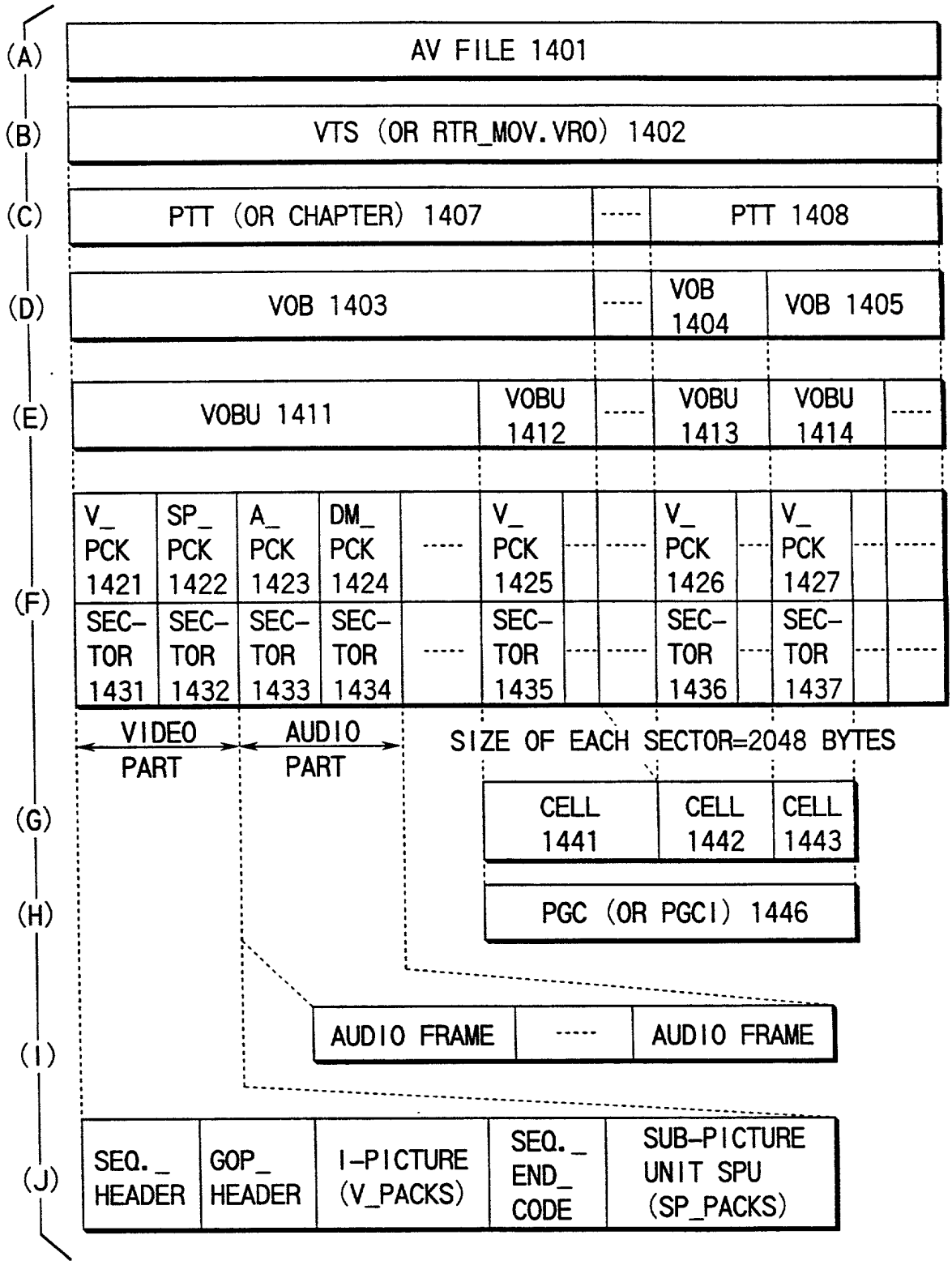
(A)
AV FILE 1401
(B)
VTS (OR RTR_MOV.VRO) 1402
(C)
PTT (OR CHAPTER) 1407
PTT 1408
(D)
VOB 1403
VOB 1404
VOB 1405
(E)
VOBU 1411
VOBU 1412
VOBU 1413
VOBU 1414
(F)
V_PCK 1421
SP_PCK 1422
A_PCK 1423
DM_PCK 1424
V_PCK 1425
V_PCK 1426
V_PCK 1427
SECTOR 1431
SECTOR 1432
SECTOR 1433
SECTOR 1434
SECTOR 1435
SECTOR 1436
SECTOR 1437
VIDEO PART
AUDIO PART
SIZE OF EACH SECTOR=2048 BYTES
(G)
CELL 1441
CELL 1442
CELL 1443
(H)
PGC (OR PGCI) 1446
(I)
AUDIO FRAME
AUDIO FRAME
(J)
SEQ._HEADER
GOP_HEADER
I-PICTURE (V_PACKS)
SEQ._END_CODE
SUB-PICTURE UNIT SPU (SP_PACKS)

FIG. 3

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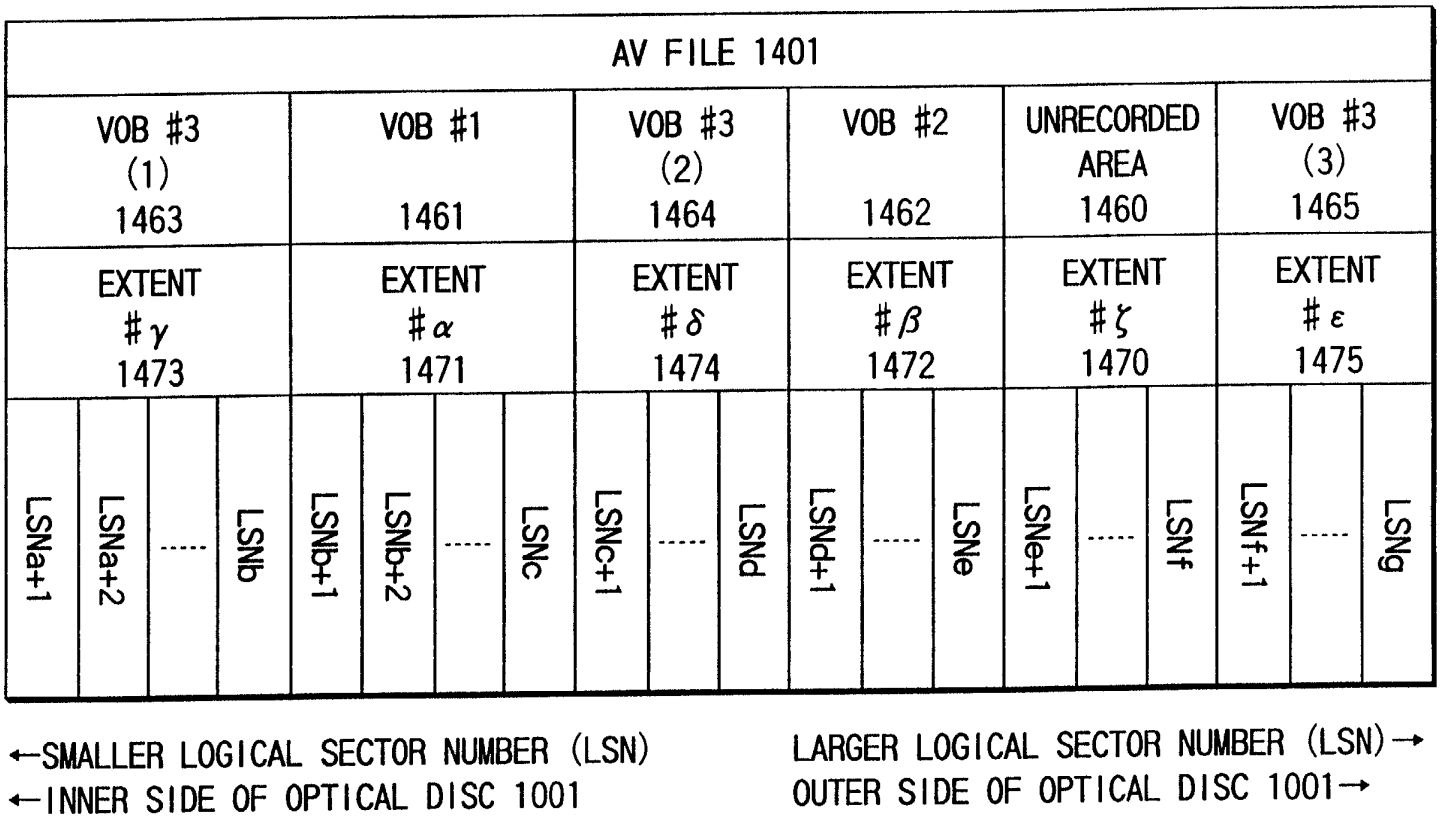


FIG. 4

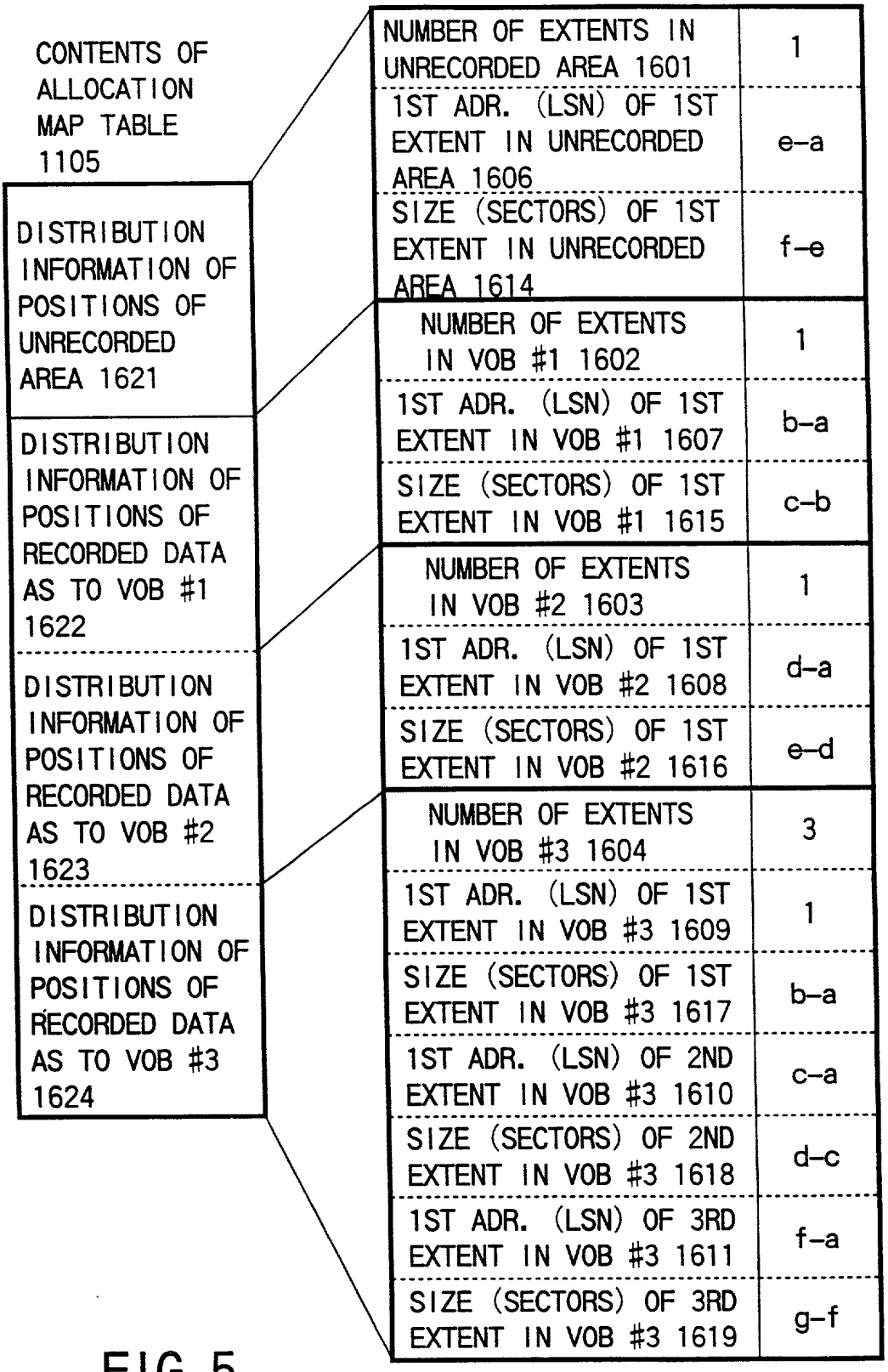
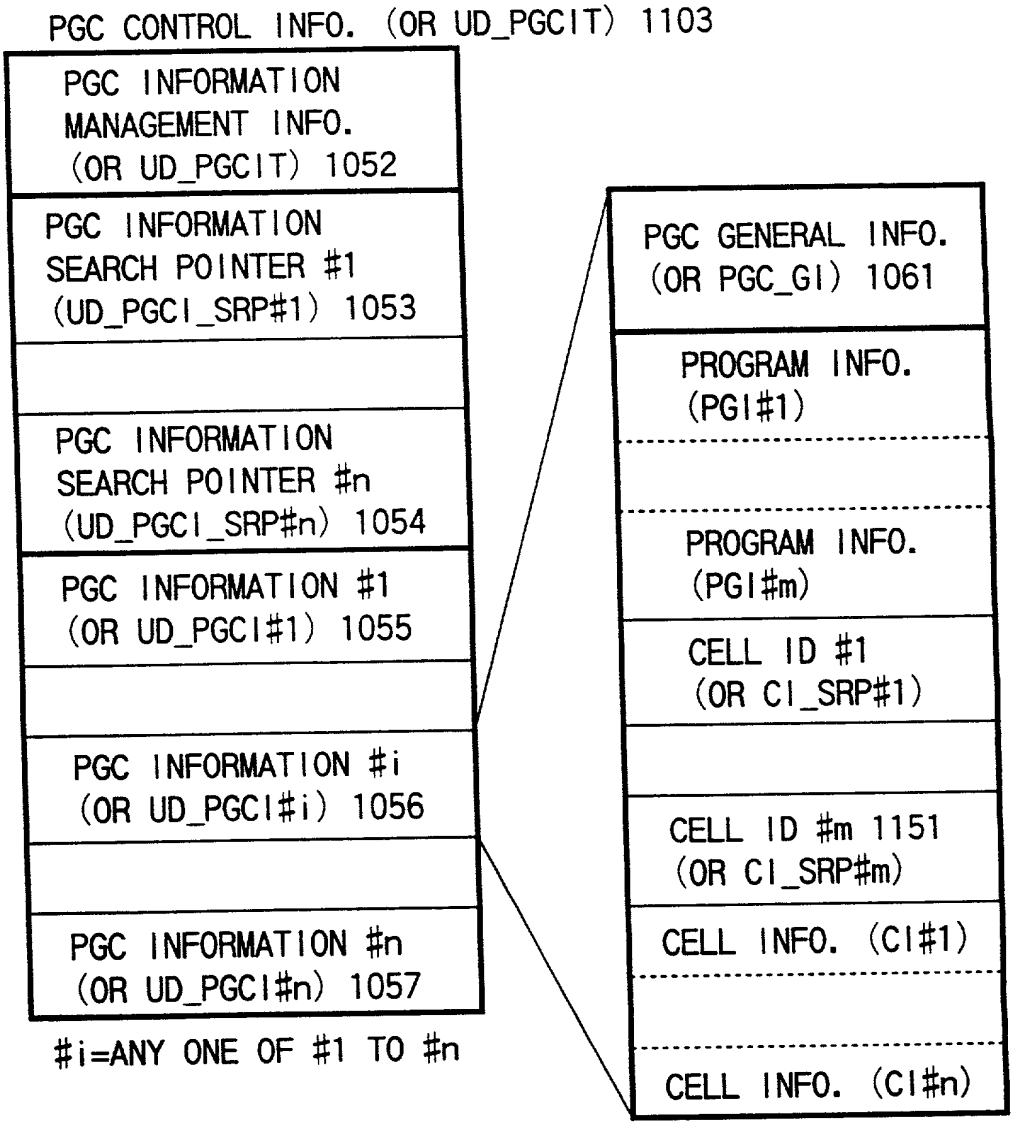

CONTENTS OF ALLOCATION MAP TABLE 1105
DISTRIBUTION INFORMATION OF POSITIONS OF UNRECORDED AREA 1621
DISTRIBUTION INFORMATION OF POSITIONS OF RECORDED DATA AS TO VOB #1 1622
DISTRIBUTION INFORMATION OF POSITIONS OF RECORDED DATA AS TO VOB #2 1623
DISTRIBUTION INFORMATION OF POSITIONS OF RECORDED DATA AS TO VOB #3 1624
NUMBER OF EXTENTS IN UNRECORDED AREA 1601
1
1ST ADR. (LSN) OF 1ST EXTENT IN UNRECORDED AREA 1606
e-a
SIZE (SECTORS) OF 1ST EXTENT IN UNRECORDED AREA 1614
f-e
NUMBER OF EXTENTS IN VOB #1 1602
1
1ST ADR. (LSN) OF 1ST EXTENT IN VOB #1 1607
b-a
SIZE (SECTORS) OF 1ST EXTENT IN VOB #1 1615
c-b
NUMBER OF EXTENTS IN VOB #2 1603
1
1ST ADR. (LSN) OF 1ST EXTENT IN VOB #2 1608
d-a
SIZE (SECTORS) OF 1ST EXTENT IN VOB #2 1616
e-d
NUMBER OF EXTENTS IN VOB #3 1604
3
1ST ADR. (LSN) OF 1ST EXTENT IN VOB #3 1609
1
SIZE (SECTORS) OF 1ST EXTENT IN VOB #3 1617
b-a
1ST ADR. (LSN) OF 2ND EXTENT IN VOB #3 1610
c-a
SIZE (SECTORS) OF 2ND EXTENT IN VOB #3 1618
d-c
1ST ADR. (LSN) OF 3RD EXTENT IN VOB #3 1611
f-a
SIZE (SECTORS) OF 3RD EXTENT IN VOB #3 1619
g-f

FIG. 5



*1> PGC INFORMATION (OR UD_PGCI) CAN DEFINE
A GROUP OF ONE OR MORE PROGRAMS;
*2> EACH PROGRAM CAN BE FORMED OF ONE OR MORE CELLS;
*3> EACH CELL CAN BE SPECIFIED BY CELL ID (OR CI_SRP);
*4> EACH CELL ID (OR CI_SRP) CAN INDICATE POSITION
(OR START ADDRESS) OF CELL INFORMATION (OR CI);
*5> EACH CELL INFORMATION (OR CI) CAN DETERMINE
START TIME AND END TIME OF PRESENTATION OF CELL

FIG. 6

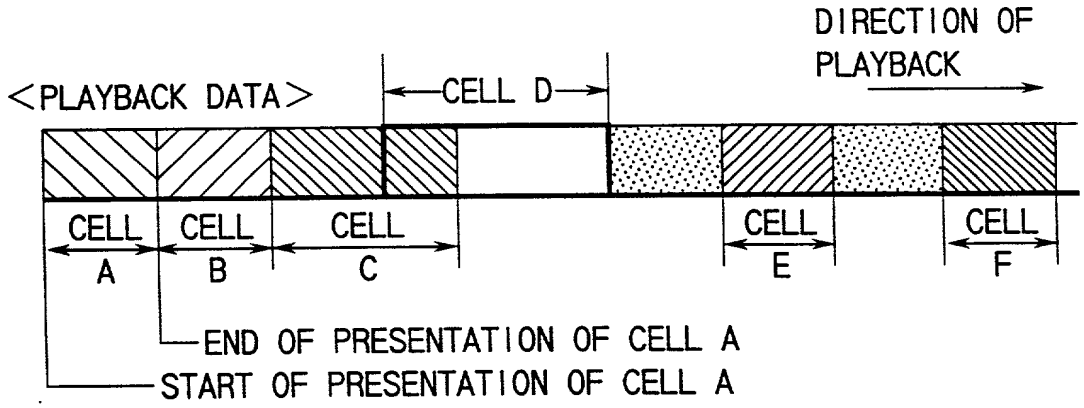


FIG. 7A

PGC INFORMATION (PGCI)

PGC#1 1081		PGC#2 1082		PGC#3 1083	
NUMBER OF CELLS=3		NUMBER OF CELLS=3		NUMBER OF CELLS=5	
#1	CELL A	#1	CELL D	#1	CELL E
#2	CELL B	#2	CELL E	#2	CELL A
#3	CELL C	#3	CELL F	#3	CELL D
——	——	——	——	#4	CELL B
——	——	——	——	#5	CELL E
CELL ID	CELL INFO.	CELL ID	CELL INFO.	CELL ID	CELL INFO.
CI_SRP #m=3	CI #n=3	CI_SRP #m=3	CI #n=3	CI_SRP #m=5	CI #n=4

FIG. 7B

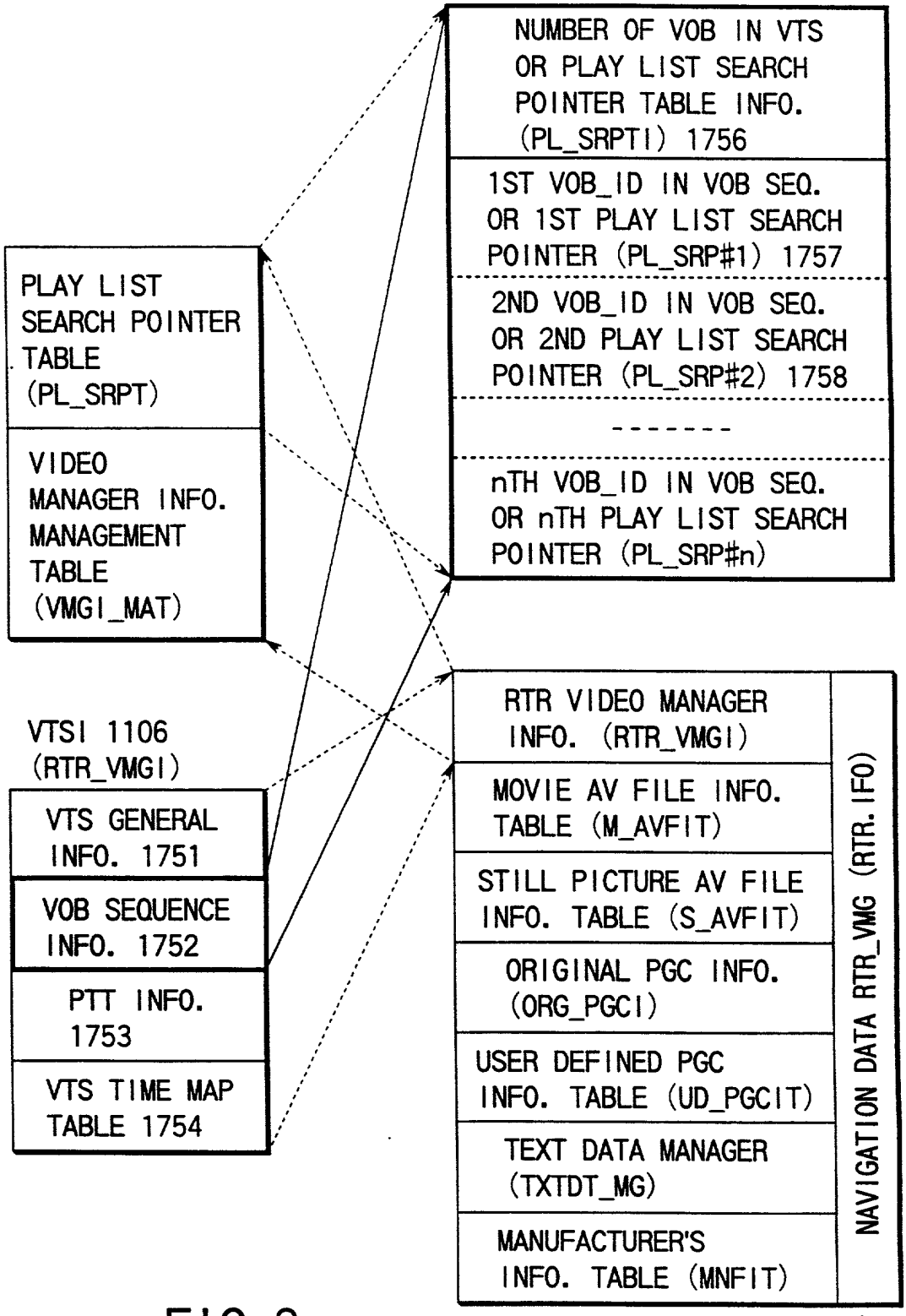

NUMBER OF VOB IN VTS OR PLAY LIST SEARCH POINTER TABLE INFO. (PL_SRPTI) 1756
1ST VOB_ID IN VOB SEQ. OR 1ST PLAY LIST SEARCH POINTER (PL_SRP#1) 1757
2ND VOB_ID IN VOB SEQ. OR 2ND PLAY LIST SEARCH POINTER (PL_SRP#2) 1758
nTH VOB_ID IN VOB SEQ. OR nTH PLAY LIST SEARCH POINTER (PL_SRP#n)
PLAY LIST SEARCH POINTER TABLE (PL_SRPT)
VIDEO MANAGER INFO. MANAGEMENT TABLE (VMGI_MAT)
VTSI 1106 (RTR_VMGI)
VTS GENERAL INFO. 1751
VOB SEQUENCE INFO. 1752
PTT INFO. 1753
VTS TIME MAP TABLE 1754
RTR VIDEO MANAGER INFO. (RTR_VMGI)
MOVIE AV FILE INFO. TABLE (M_AVFIT)
STILL PICTURE AV FILE INFO. TABLE (S_AVFIT)
ORIGINAL PGC INFO. (ORG_PGCI)
USER DEFINED PGC INFO. TABLE (UD_PGCIT)
TEXT DATA MANAGER (TXTDT_MG)
MANUFACTURER'S INFO. TABLE (MNFIT)
NAVIGATION DATA RTR_VMG (RTR. IFO)

FIG. 8

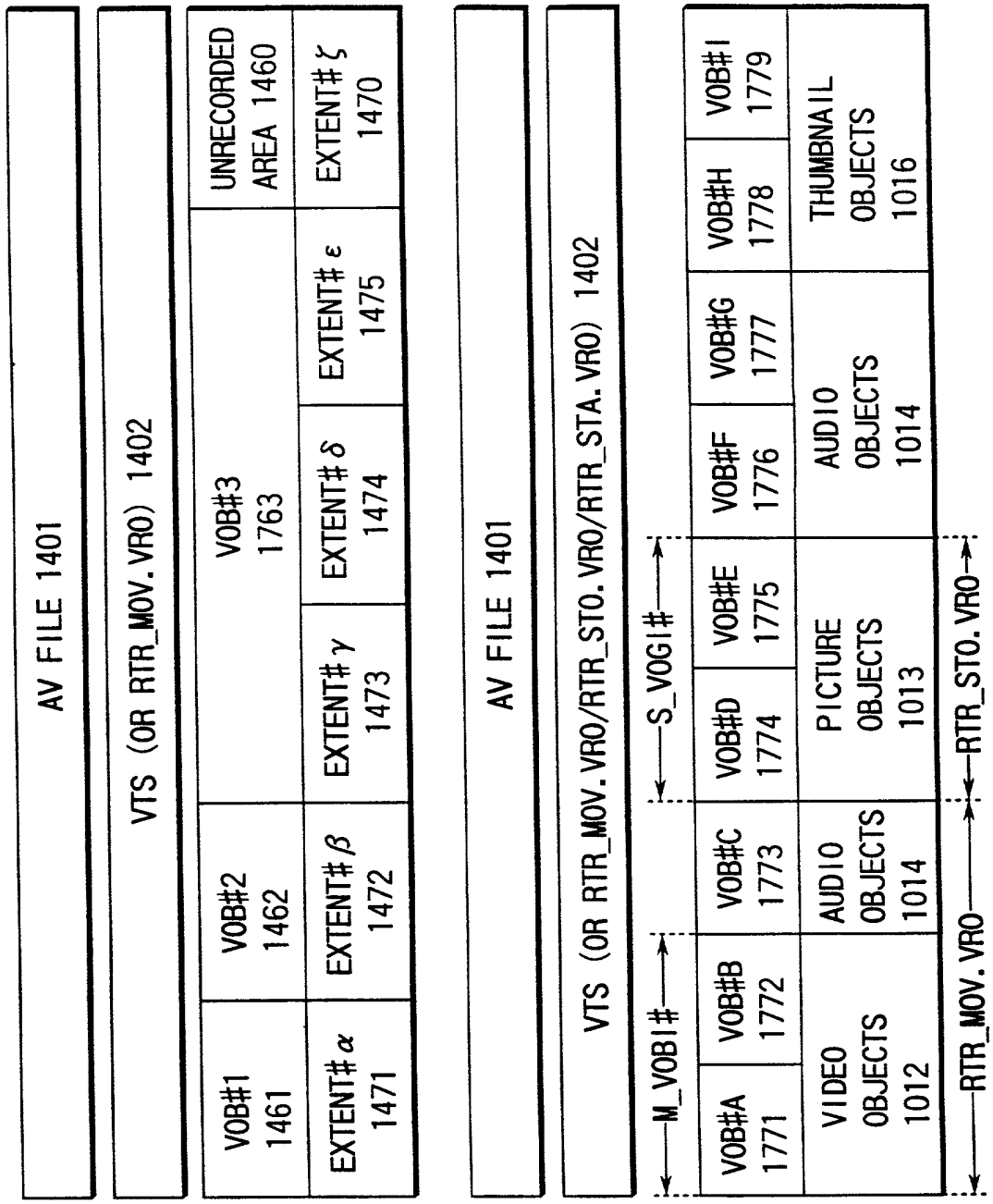


FIG. 9A
FIG. 9B
FIG. 9C
FIG. 9D
FIG. 9E
FIG. 9F

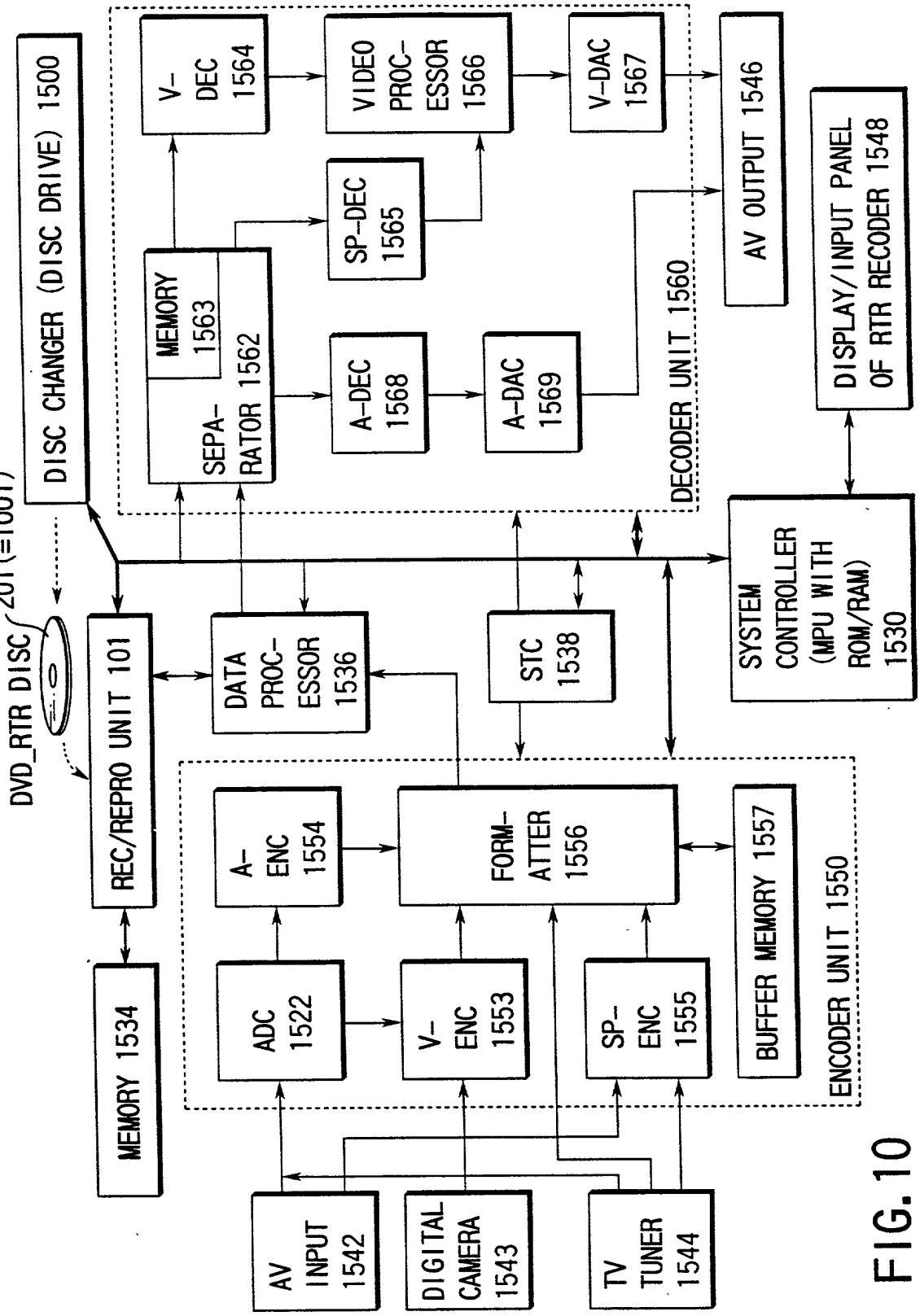

DISC CHANGER (DISC DRIVE) 1500
201 (=1001)
DVD_RTR DISC
REC/REPRO UNIT 101
MEMORY 1534
DATA PROC-ESSOR 1536
STC 1538
SYSTEM CONTROLLER (MPU WITH ROM/RAM) 1530
DISPLAY/INPUT PANEL OF RTR RECODER 1548
DECODER UNIT 1560
V-DEC 1564
VIDEO PROC-ESSOR 1566
V-DAC 1567
AV OUTPUT 1546
SP-DEC 1565
MEMORY 1563
SEPA-RATOR 1562
A-DEC 1568
A-DAC 1569
ENCODER UNIT 1550
A-ENC 1554
FORM-ATTER 1556
BUFFER MEMORY 1557
ADC 1522
V-ENC 1553
SP-ENC 1555
AV INPUT 1542
DIGITAL CAMERA 1543
TV TUNER 1544

FIG. 10

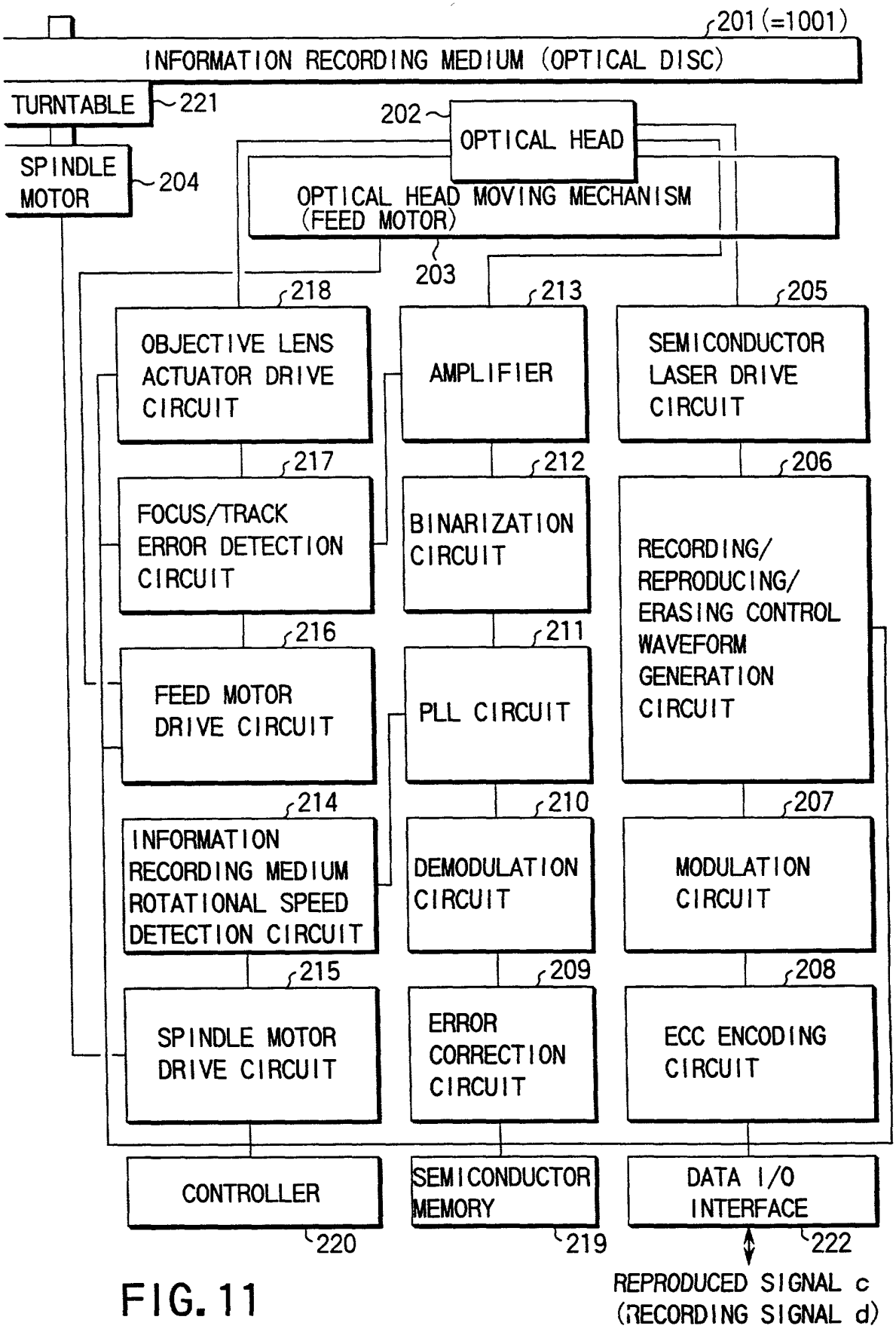

201 (=1001)
INFORMATION RECORDING MEDIUM (OPTICAL DISC)
TURNTABLE
221
SPINDLE MOTOR
204
202
OPTICAL HEAD
OPTICAL HEAD MOVING MECHANISM (FEED MOTOR)
203
218
OBJECTIVE LENS ACTUATOR DRIVE CIRCUIT
213
AMPLIFIER
205
SEMICONDUCTOR LASER DRIVE CIRCUIT
217
FOCUS/TRACK ERROR DETECTION CIRCUIT
212
BINARIZATION CIRCUIT
206
RECORDING/ REPRODUCING/ ERASING CONTROL WAVEFORM GENERATION CIRCUIT
216
FEED MOTOR DRIVE CIRCUIT
211
PLL CIRCUIT
214
INFORMATION RECORDING MEDIUM ROTATIONAL SPEED DETECTION CIRCUIT
210
DEMODULATION CIRCUIT
207
MODULATION CIRCUIT
215
SPINDLE MOTOR DRIVE CIRCUIT
209
ERROR CORRECTION CIRCUIT
208
ECC ENCODING CIRCUIT
CONTROLLER
220
SEMICONDUCTOR MEMORY
219
DATA I/O INTERFACE
222
REPRODUCED SIGNAL c
(RECORDING SIGNAL d)

FIG. 11

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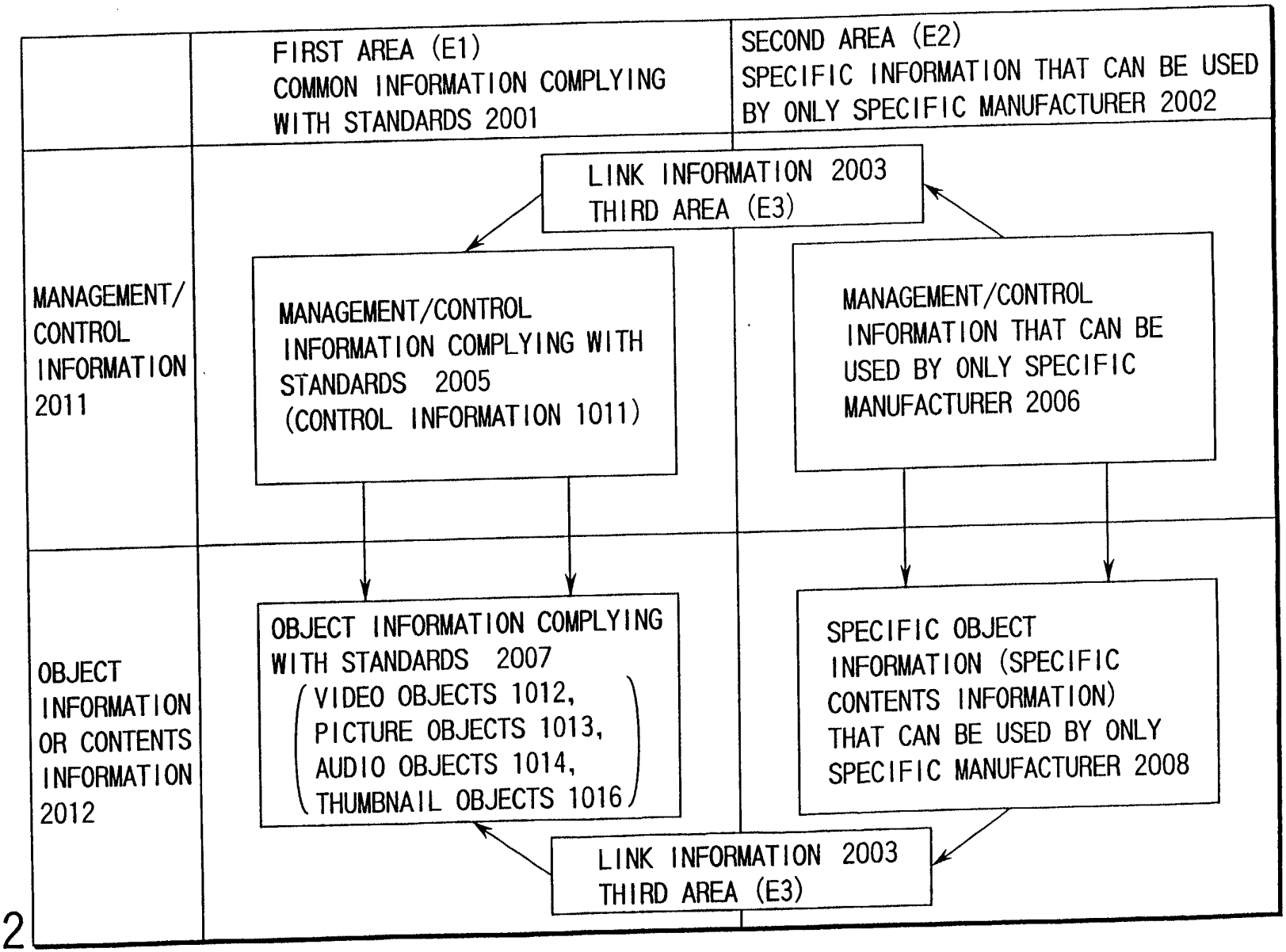

FIG. 12

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CLASSIFICATION ITEM 2020	DETAILED INFORMATION CONTENTS 2021	
LINK INFORMATION SIZE 2022	DATA SIZE OF ONE LINK INFORMATION (TOTAL OF ALL PIECES OF INFORMATION WHICH FOLLOW) (INDICATED BY NUMBER OF SECTORS USED (INTEGER MULTIPLE OF 2,048 BYTES))	2030
IDENTIFICATION INFORMATION OF LINK INFORMATION 2023	ID INFORMATION OR LINK INFORMATION NUMBER OF LINK INFORMATION	2031
INFORMATION PERTAINING TO DRIVE MANUFACTURER 2024	ID INFORMATION OF CHARACTER CODE FOR DRIVE MANUFACTURER USE	2033
	DRIVE MANUFACTURER GROUP ID INFORMATION (ID OF GROUP FORMED BY A PLURALITY OF MANUFACTURERS) OF DRIVE MANUFACTURER GROUP THAT CAN USE SPECIFIC INFORMATION ASSOCIATED WITH THIS LINK INFORMATION	2034
	DRIVE MANUFACTURER ID INFORMATION (DRIVE MANUFACTURER NAME OR THE LIKE) OF DRIVE MANUFACTURER THAT CAN USE SPECIFIC INFORMATION ASSOCIATED WITH THIS LINK INFORMATION	2035
	TIME INFORMATION (SETTING DATE OF DRIVE MANUFACTURER ID OR THE LIKE) PERTAINING TO DRIVE MANUFACTURER THAT CAN USE SPECIFIC INFORMATION ASSOCIATED WITH THIS LINK INFORMATION	2036
	ADDITIONAL INFORMATION PERTAINING TO THIS LINK INFORMATION WHICH CAN BE SET BY DRIVE MANUFACTURER	2037
FUNCTION INFORMATION 2025	FUNCTION INFORMATION (CATEGORY ID) WHICH PERTAINS TO SPECIFIC INFORMATION AND IS COMMON TO A PLURALITY OF COMPANIES	2040
	INFORMATION PERTAINING TO LINK PATTERN OF SPECIFIC INFORMATION ASSOCIATED WITH THIS LINK INFORMATION	2041

FIG. 13A

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CLASSIFICATION ITEM 2020	DETAILED INFORMATION CONTENTS 2021
FUNCTION INFORMATION 2025	CORRECTION CONTENT AUTOMATIC INSPECTION INFORMATION FOR AUTOMATICALLY CHANGING/CORRECTING CONTENTS OF SPECIFIC INFORMATION THAT CAN BE USED BY ONLY SPECIFIC MANUFACTURER IN ACCORDANCE WITH CHANGE IN CONTENTS OF COMMON INFORMATION COMPLYING WITH STANDARDS 2042
LINK DESIGNATION LOCATIONS OF LINK SOURCE AND LINK DESTINATION, LINK DESIGNATION RANGE, AND PRIORITY ORDER INFORMATION 2026	NUMBER OF LINK DESIGNATION LOCATIONS IN COMMON INFORMATION COMPLYING WITH STANDARDS 2044
	FIRST PRIORITY LINK DESIGNATION LOCATION INFORMATION IN COMMON INFORMATION COMPLYING WITH STANDARDS 2045
	FIRST PRIORITY LINK DESIGNATION LOCATION INFORMATION IN COMMON INFORMATION COMPLYING WITH STANDARDS 2046
	SECOND PRIORITY LINK DESIGNATION LOCATION INFORMATION IN COMMON INFORMATION COMPLYING WITH STANDARDS 2047
	SECOND PRIORITY LINK DESIGNATION LOCATION INFORMATION IN COMMON INFORMATION COMPLYING WITH STANDARDS 2048
	: :
	NUMBER OF LINK DESIGNATION LOCATIONS IN SPECIFIC INFORMATION THAT CAN BE USED BY ONLY SPECIFIC MANUFACTURER 2054
	FIRST PRIORITY LINK DESIGNATION LOCATION INFORMATION IN SPECIFIC INFORMATION 2055
	FIRST PRIORITY LINK DESIGNATION LOCATION INFORMATION IN SPECIFIC INFORMATION 2056

FIG. 13B

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CLASSIFICATION ITEM 2020	DETAILED INFORMATION CONTENTS 2021	
LINK DESIGNATION LOCATIONS OF LINK SOURCE AND LINK DESTINATION, LINK DESIGNATION RANGE, AND PRIORITY ORDER INFORMATION 2026	SECOND PRIORITY LINK DESIGNATION LOCATION INFORMATION IN SPECIFIC INFORMATION	2057
	SECOND PRIORITY LINK DESIGNATION LOCATION INFORMATION IN SPECIFIC INFORMATION	2058
	: :	
TIME INFORMATION PERTAINING TO THIS LINK INFORMATION 2027	LAST RECORDING/CHANGE TIME (DATE) INFORMATION OF THIS LINK INFORMATION	2061
	EFFECTIVE PERIOD INFORMATION OF THIS LINK INFORMATION (DUE DATE OF LINK INFORMATION)	2062
	TIME INFORMATION PERTAINING TO SPECIFIC INFORMATION (TIME BAND INFORMATION IN WHICH SPECIFIC INFORMATION CAN BE USED OR THE LIKE)	2063
SPECIFIC INFORMATION USABLE CONDITION INFORMATION 2028	USABLE/UNUSABLE DETERMINATION FLAG FOR SPECIFIC INFORMATION	2071
	PASSWORD INFORMATION FOR SETTING SECURITY	2072
	MODEL INFORMATION THAT CAN USE SPECIFIC INFORMATION (OLDEST MODEL THAT CAN USE SPECIFIC INFORMATION)	2073
	INFORMATION PERTAINING TO USABLE CONDITION FOR SPECIFIC INFORMATION (USER RANGE DESIGNATION THAT ALLOWS USE OF SPECIFIC INFORMATION OR THE LIKE)	2074
	SPACE INFORMATION PERTAINING TO USE CONDITION OF SPECIFIC INFORMATION (USABLE REGION OR THE LIKE)	2075

FIG. 13C

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NUMBER OF PIECES OF ID INFORMATION 2081	ATTRIBUTE OF ID INFORMATION 2082	VARIOUS EMBODIMENTS 2083	DETAILED CONTENTS OF EMBODIMENTS 2084	EFFECT OF EMBODIMENTS 2085
INDEPENDENT INFORMATION 2091	ORIGINAL ID INFORMATION (1/0 INFORMATION) 2095	SYSTEMATICALLY MANAGE ID INFORMATION IN UNITS OF DRIVE MANUFACTURERS BY SPECIFIC ORGANIZATION	(DVD FORUM OR THE LIKE) ASSIGN ID INFORMATION TO EACH DRIVE MANUFACTURER BY THIRD PARTY COMMON ORGANIZATION	·ID DUPLICATION AMONG DIFFERENT DRIVE MANUFACTURERS CAN BE AVOIDED ·THE NUMBER OF DIGITS REQUIRED FOR ID INFORMATION CAN BE MINIMIZED
		SET ORIGINAL ID INFORMATION BY EACH DRIVE MANUFACTURER	NO MANAGEMENT BY SPECIFIC ORGANIZATION DETERMINE INFORMATION OF UNSUPPORTED MANUFACTURER WHEN SPECIFIC INFORMATION CANNOT BE READ	·NO ID INFORMATION MANAGEMENT ORGANIZATION IN UNITS OF DRIVE MANUFACTURERS IS REQUIRED ·ID INFORMATION CAN BE ARBITRARILY SET

FIG. 14A

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NUMBER OF PIECES OF ID INFORMATION 2081	ATTRIBUTE OF ID INFORMATION 2082	VARIOUS EMBODIMENTS 2083	DETAILED CONTENTS OF EMBODIMENTS 2084	EFFECT OF EMBODIMENTS 2085
INDEPENDENT INFORMATION 2091	CHARACTER INFORMATION 2096	DIRECTLY DESCRIBE DRIVE MANUFACTURER NAME IN LINK INFORMATION	DESCRIBE MANUFACTURER NAME USING CHARACTER CODE 2034 (JIS CODE OR THE LIKE) SET IN LINK INFORMATION	·DRIVE MANUFACTURER ID INFORMATION CAN BE EASILY SET ·ID DUPLICATION AMONG DIFFERENT DRIVE MANUFACTURERS HARDLY OCCURS
		DESIGNATE CORRE-SPONDING NUMBER FROM DRIVE MANUFACTURER LIST TABLE (DESCRIBED BY CHARACTER INFORMATION)	REGISTER MANUFACTURER NAME IN LIST TABLE SET AT DIFFERENT POSITION IN UNITS OF DISCS, AND DESIGNATE THE REGISTERED NUMBER IN LINK INFORMATION	·NO CHARACTER CODE NEED BE SET IN LINK INFORMATION ·REGISTERED MANUFACTURER NAME CAN BE DETECTED ·INFORMATION SIZE IN LINK INFORMATION CAN BE MINIMIZED
		DESCRIBE IN CHARACTER INFORMATION DRIVE MODEL NUMBER FOR WHICH LINK INFORMATION IS SET	DETERMINE BASED ON DRIVE MODEL NUMBER THAT ONLY MANUFACTURER WHICH SELLS THAT MODEL CAN USE SPECIFIC INFORMATION	·LINK INFORMATION CAN BE FLEXIBLY SET UP IN UNITS OF DRIVE MODELS ·A PLURALITY OF PIECES OF ID INFORMATION CAN BE ASSIGNED

FIG. 14B

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NUMBER OF PIECES OF ID INFORMATION 2081	ATTRIBUTE OF ID INFORMATION 2082	VARIOUS EMBODIMENTS 2083	DETAILED CONTENTS OF EMBODIMENTS 2084	EFFECT OF EMBODIMENTS 2085
COMBINE INDEPENDENT INFORMATION WITH INFORMATION IN RIGHT COLUMN 2092	INFORMATION COMBINED WITH TIME INFORMATION 2097	USE TIME (BCD FORMAT) 2036 WHEN DRIVE MANUFACTURER ID INFORMATION IS SET TOGETHER	DETERMINE MANUFACTURER THAT CAN USE SPECIFIC INFORMATION FROM TIME INFORMATION IN BCD FORMAT AND DRIVE MANUFACTURER ID INFORMATION	·ID DUPLICATION AMONG DIFFERENT DRIVE MANUFACTURERS CAN BE AVOIDED ·UNSUPPORTED MANUFACTURER RECOGNITION ERROR RATE CAN BE GREATLY REDUCED BY COMBINING TWO PIECES OF INFORMATION
	INFORMATION COMBINED WITH ADDITIONAL INFORMATION 2098	USE ADDITIONAL INFORMATION 2037 SET BY DRIVE MANUFACTURER TOGETHER	DETERMINE MANUFACTURER THAT CAN USE SPECIFIC INFORMATION FROM ADDITIONAL INFORMATION AND DRIVE MANUFACTURER ID	
	INFORMATION COMBINED WITH PASSWORD 2099	USE PASSWORD INFORMATION 2072 FOR SETTING SECURITY TOGETHER	DETERMINE MANUFACTURER THAT CAN USE SPECIFIC INFORMATION FROM PASSWORD AND DRIVE MANUFACTURER ID	

FIG. 14C

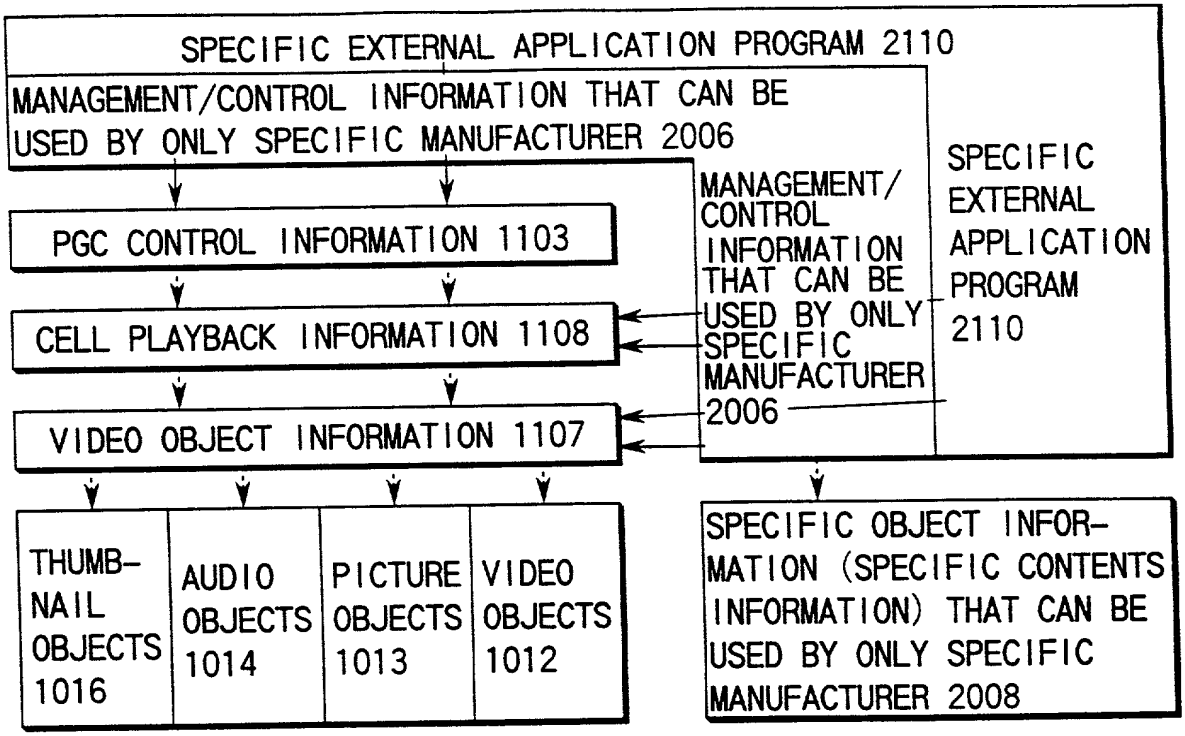
SPECIFIC EXTERNAL APPLICATION PROGRAM 2110
MANAGEMENT/CONTROL INFORMATION THAT CAN BE USED BY ONLY SPECIFIC MANUFACTURER 2006
PGC CONTROL INFORMATION 1103
CELL PLAYBACK INFORMATION 1108
VIDEO OBJECT INFORMATION 1107
THUMB-NAIL OBJECTS 1016
AUDIO OBJECTS 1014
PICTURE OBJECTS 1013
VIDEO OBJECTS 1012
MANAGEMENT/ CONTROL INFORMATION THAT CAN BE USED BY ONLY SPECIFIC MANUFACTURER 2006
SPECIFIC EXTERNAL APPLICATION PROGRAM 2110
SPECIFIC OBJECT INFOR-MATION (SPECIFIC CONTENTS INFORMATION) THAT CAN BE USED BY ONLY SPECIFIC MANUFACTURER 2008

FIG. 15

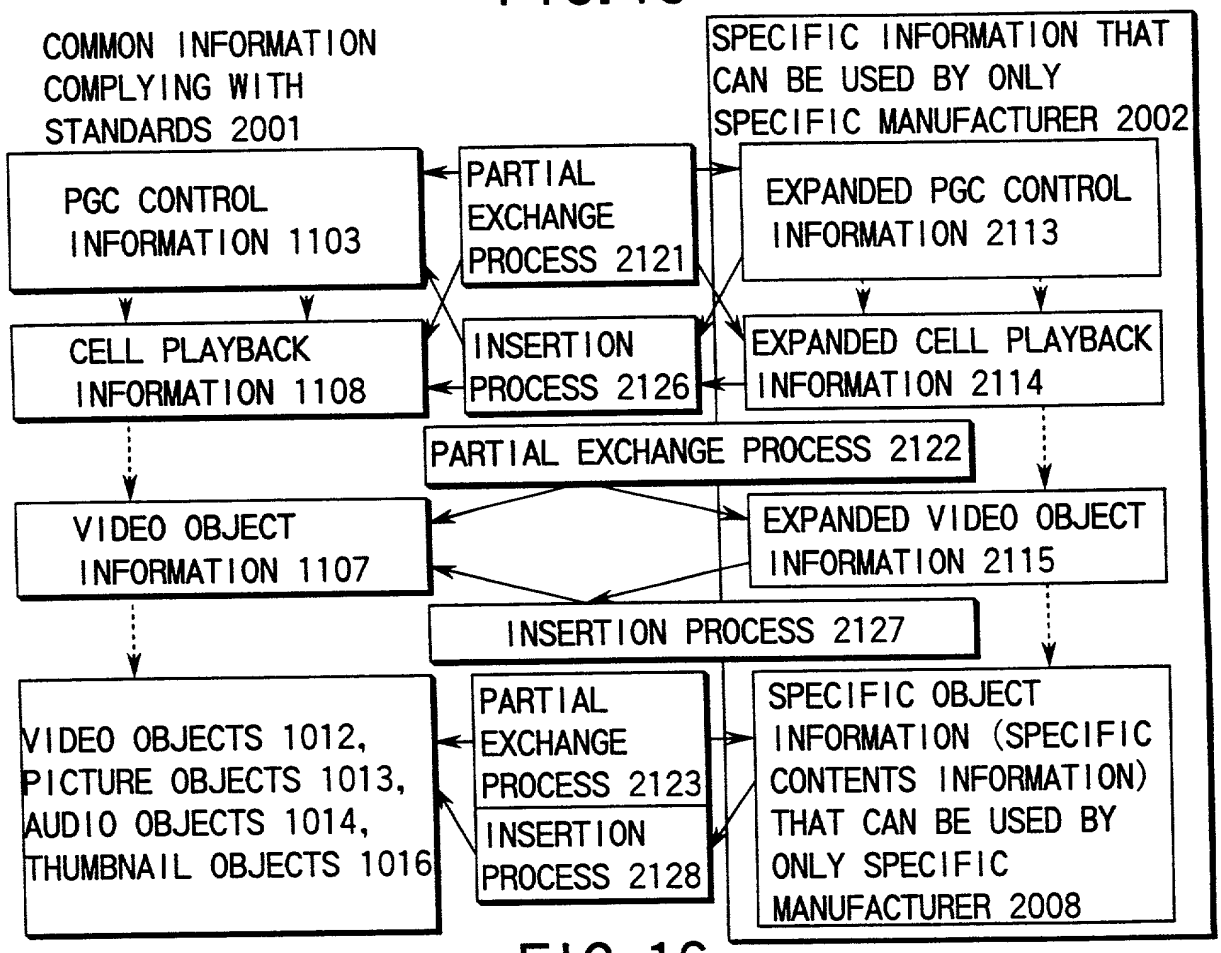
COMMON INFORMATION COMPLYING WITH STANDARDS 2001
SPECIFIC INFORMATION THAT CAN BE USED BY ONLY SPECIFIC MANUFACTURER 2002
PGC CONTROL INFORMATION 1103
PARTIAL EXCHANGE PROCESS 2121
EXPANDED PGC CONTROL INFORMATION 2113
CELL PLAYBACK INFORMATION 1108
INSERTION PROCESS 2126
EXPANDED CELL PLAYBACK INFORMATION 2114
PARTIAL EXCHANGE PROCESS 2122
VIDEO OBJECT INFORMATION 1107
EXPANDED VIDEO OBJECT INFORMATION 2115
INSERTION PROCESS 2127
VIDEO OBJECTS 1012, PICTURE OBJECTS 1013, AUDIO OBJECTS 1014, THUMBNAIL OBJECTS 1016
PARTIAL EXCHANGE PROCESS 2123
INSERTION PROCESS 2128
SPECIFIC OBJECT INFORMATION (SPECIFIC CONTENTS INFORMATION) THAT CAN BE USED BY ONLY SPECIFIC MANUFACTURER 2008

FIG. 16

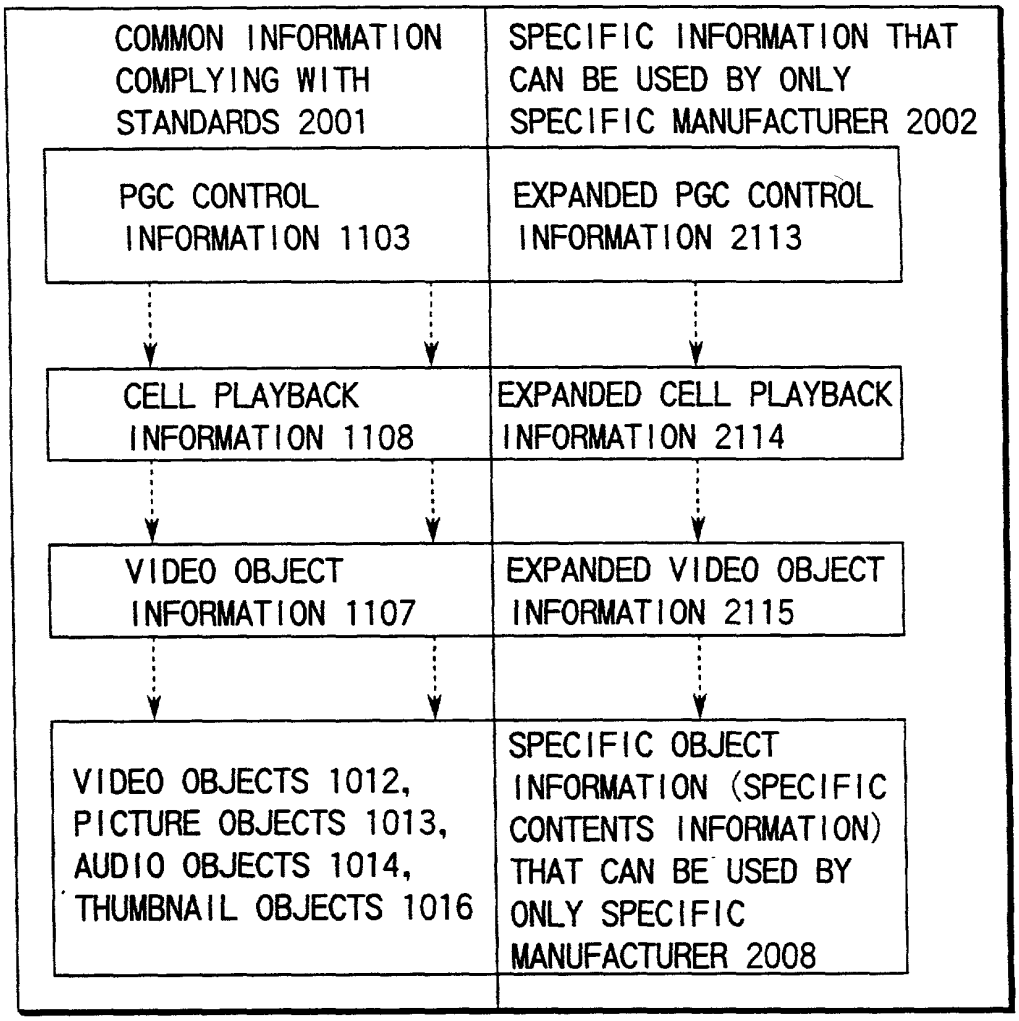
COMMON INFORMATION COMPLYING WITH STANDARDS 2001
SPECIFIC INFORMATION THAT CAN BE USED BY ONLY SPECIFIC MANUFACTURER 2002
PGC CONTROL INFORMATION 1103
EXPANDED PGC CONTROL INFORMATION 2113
CELL PLAYBACK INFORMATION 1108
EXPANDED CELL PLAYBACK INFORMATION 2114
VIDEO OBJECT INFORMATION 1107
EXPANDED VIDEO OBJECT INFORMATION 2115
VIDEO OBJECTS 1012, PICTURE OBJECTS 1013, AUDIO OBJECTS 1014, THUMBNAIL OBJECTS 1016
SPECIFIC OBJECT INFORMATION (SPECIFIC CONTENTS INFORMATION) THAT CAN BE USED BY ONLY SPECIFIC MANUFACTURER 2008

FIG. 17

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CATEGORY ID 2040	LINK PATTERN 2041	OUTLINE OF FUNCTION CONTENTS 2131	RELEVANT OBJECT INFORMATION CONTENT RANGE 2132	MANAGEMENT/CONTROL INFORMATION COMPLYING WITH STANDARDS OF LINKED OBJECTS 2133	THIRD PARTY INFORMATION THAT CAN BE COMMONLY USED 2134
1	A	SYSTEMATICALLY MANAGE INFORMATION RECORDED IN RECORDING MULTILAYERS	ALL	PGC_info. 1103 PGC_info. 1107	COMPANIES B AND C
2	A	VIDEO RECORDING USING PROGRAM RESERVATION INFORMATION	ALL	ALL PIECES OF MANAGEMENT/ CONTROL INFORMATION	COMPANIES B AND C
3	A	SEARCH PROCESS USING QURRY INFORMATION	ALL	ALL PIECES OF MANAGEMENT/ CONTROL INFORMATION	COMPANY D
4	B	PLAY BACK/DISPLAY VIDEO/STILL PICTURE INFORMATION RECORDED IN DIFFERENT FORMAT	PTT 1408	VOB_info. 1107 OBJECT 2007	COMPANY B
5	B	VARIABLE SPEED PLAYBACK PROCESS	ALL	Cell_info. 1108	COMPANY C
6	B	SIMULTANEOUSLY PLAY BACK/DISPLAY AFTER-RECORDED INFORMATION	ALL	Cell_info. 1108	COMPANY A ONLY

FIG. 18A

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CATEGORY ID 2040	LINK PATTERN 2041	OUTLINE OF FUNCTION CONTENTS 2131	RELEVANT OBJECT INFORMATION CONTENT RANGE 2132	MANAGEMENT/CONTROL INFORMATION COMPLYING WITH STANDARDS OF LINKED OBJECTS 2133	THIRD PARTY INFORMATION THAT CAN BE COMMONLY USED 2134
7	B	DISPLAY/OUTPUT SPECIAL EDIT VIDEO INFORMATION	PTT 1408	Cell_info. 1108	COMPANY B
8	C	CM/COMMENT AUTOMATIC INSERTION	PTT 1407	Cell_info. 1108	COMPANIES C AND D
9	D	ADD SECURITY FUNCTION	PTT 1407	VOB_info. 1107	COMPANY A ONLY
10	D	SIMULTANEOUS DISPLAY OF SMALL WINDOW	PTT 1407	Cell_info. 1108	COMPANY A ONLY
11	D	SET IMAGE QUALITY IMPROVING PARAMETER	ALL	VOB_info. 1107	COMPANY D
12	D	SET USER RECORDING/ PLAYBACK LOCATION	ALL	Cell_info. 1108	COMPANIES B AND C

FIG. 18B

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(A) EDIT CONTROL INFORMATION 1023

(B)

EDIT HISTORY INFORMATION 2141	LINK INFORMATION 2003	...

(C)

DATE/TIME INFORMATION OF LATEST EDIT PROCESS 2144	DATE/TIME INFORMATION OF SECOND LATEST EDIT PROCESS 2145	DATE/TIME INFORMATION OF THIRD LATEST EDIT PROCESS 2146	INFORMATION PERTAINING TO DETAILED EDIT HISTORY CONTENTS 2149

FIG. 19

DESIGNATION LOCATION	SETTING METHOD OF DESIGNATION LOCATION	DESCRIPTION OF PRACTICAL METHOD	EFFECTS (MERITS) OF RESPECTIVE EMBODIMENTS
ARBITRARY LOCATION CAN BE DESIGNATED	DIRECTLY INSERT "POINTER INFORMATION" IN COMMON INFORMATION [A]	·DIRECTLY INSERT "POINTER INFORMATION" IN COMMON INFORMATION 2001 ·DESCRIBE TAG INFORMATION AND POINTER SIZE INFORMATION AT HEAD POSITION OF POINTER INFORMATION TO AVOID CONFUSION WITH OTHER COMMON INFORMATION ·DESIGNATE ID (OR NUMBER) OF CORRESPONDING LINK INFORMATION IN POINTER INFORMATION	·ARBITRARY LOCATION AND RANGE IN COMMON INFORMATION 2001 CAN BE DESIGNATED ·SINCE POINTER INFORMATION SIZE IS SMALL, ENTIRE COMMON INFORMATION 2001 IS FREE FROM ANY LARGE INCREASE IN INFORMATION SIZE DUE TO INSERTION

FIG. 21A

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DESIGNATION LOCATION	SETTING METHOD OF DESIGNATION LOCATION	DESCRIPTION OF PRACTICAL METHOD	EFFECTS (MERITS) OF RESPECTIVE EMBODIMENTS
ARBITRARY LOCATION CAN BE DESIGNATED	DIRECTLY INSERT "LINK INFORMATION" IN COMMON INFORMATION [B]	·DIRECTLY INSERT "LINK INFORMATION" IN COMMON INFORMATION 2001 ·DESCRIBE TAG INFORMATION AND POINTER SIZE INFORMATION AT HEAD POSITION OF POINTER INFORMATION TO AVOID CONFUSION WITH OTHER COMMON INFORMATION ·DISTRIBUTE INDIVIDUAL LINK INFORMATION IN COMMON INFORMATION 2001	·ARBITRARY LOCATION AND RANGE IN COMMON INFORMATION 2001 CAN BE DESIGNATED ·SINCE LINK INFORMATION CAN BE DIRECTLY PLAYED BACK IN COMMON INFORMATION 2001, QUICK ACCESS TO 2002 IS ACHIEVED

FIG. 21B

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DESIGNATION LOCATION	SETTING METHOD OF DESIGNATION LOCATION	DESCRIPTION OF PRACTICAL METHOD	EFFECTS (MERITS) OF RESPECTIVE EMBODIMENTS
DESIGNATION LOCATION AND RANGE ARE LIMITED IN ADVANCE ↓ VOB_Info, Cell_Info, PGC_Info, AND THE LIKE	ASSURE DESCRIPTION COLUMN FOR DESIGNATING LINK INFORMATION IN COMMON INFORMATION [C]	·ASSURE DESCRIPTION COLUMN INDICATING ID (OR NUMBER) OF LINK INFORMATION AT INFORMATION DESCRIPTION LOCATIONS PERTAINING TO CORRESPONDING VOBs, CELLS, PGCs IN VIDEO OBJECT INFORMATION 1107, PGC CONTROL INFORMATION 1103, AND CELL PLAYBACK INFORMATION 1108 ·COLUMN HAS NO ENTRY IF LINK INFORMATION IS NOT DESIGNATED	·SINCE TAG INFORMATION AND SUBSEQUENT INFORMATION INSERTED IN COMMON INFORMATION 2001 NEED NOT BE SKIPPED, READ ERROR IN COMMON INFORMATION 2001 HARDLY OCCURS IN INFORMATION PLAYBACK APPARATUS WHICH DOES NOT USE LINK INFORMATION

FIG. 21C

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DESIGNATION LOCATION	SETTING METHOD OF DESIGNATION LOCATION	DESCRIPTION OF PRACTICAL METHOD	EFFECTS (MERITS) OF RESPECTIVE EMBODIMENTS
DESIGNATION LOCATION AND RANGE ARE LIMITED IN ADVANCE ↓ VOB_Info, Cell_Info, PGC_Info, AND THE LIKE	PROVIDE INFORMATION OF DESIGNATION LOCATION AND DESIGNATION RANGE IN COMMON INFORMATION TO LINK INFORMATION [D]	·CORRESPONDING DESIGNATION LOCATION AND DESIGNATION RANGE INFORMATION IN COMMON INFORMATION 2001 COMPLYING WITH STANDARDS ARE DESCRIBED IN LINK INFORMATION 2003, AS SHOWN IN FIG.13 ·IN FIG.13, BY DESIGNATING PRIORITY ORDER, A PLURALITY OF PARALLEL LINKS CAN BE DESIGNATED FROM ONE LINK INFORMATION TO A PLURALITY OF LOCATIONS IN COMMON INFORMATION 2001 ·THERE IS NO INFLUENCE ON CONTENTS OF COMMON INFORMATION 2001 IRRESPECTIVE OF PRESENCE/ABSENCE OF LINK INFORMATION 2003 AND SPECIFIC INFORMATION 2003	·SINCE TAG INFORMATION AND SUBSEQUENT INFORMATION INSERTED IN COMMON INFORMATION 2001 NEED NOT BE SKIPPED, READ ERROR IN COMMON INFORMATION 2001 HARDLY OCCURS IN INFORMATION PLAYBACK APPARATUS WHICH DOES NOT USE LINK INFORMATION ·INFORMATION SIZE IN COMMON INFORMATION 2001 CAN BE MINIMIZED ·INFLUENCE ON INFORMATION PLAYBACK APPARATUS THAT DOES NOT USE LINK INFORMATION IS MINIMUM

FIG.21D

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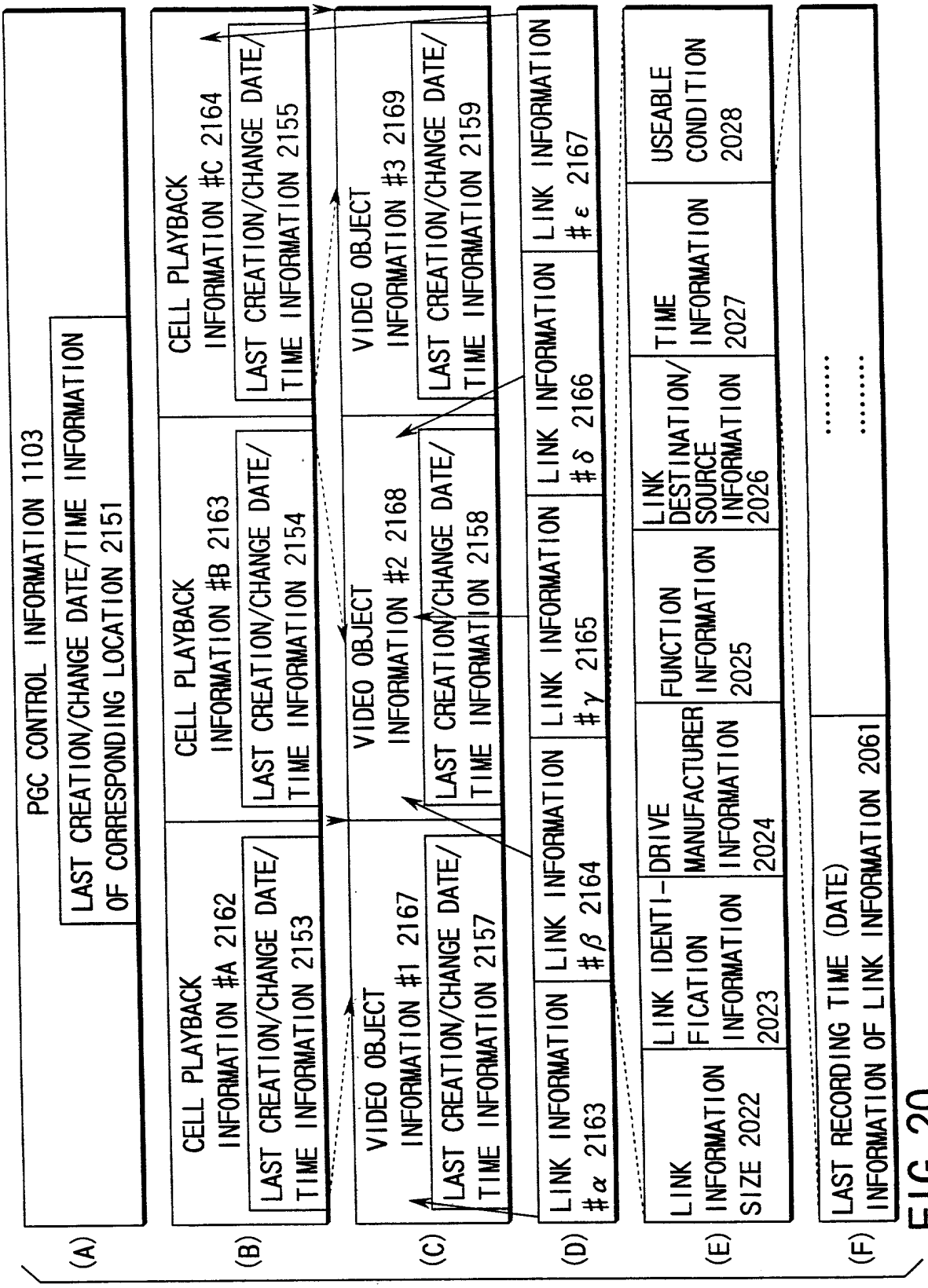
(A)
PGC CONTROL INFORMATION 1103
LAST CREATION/CHANGE DATE/TIME INFORMATION OF CORRESPONDING LOCATION 2151
(B)
CELL PLAYBACK INFORMATION #A 2162
LAST CREATION/CHANGE DATE/ TIME INFORMATION 2153
CELL PLAYBACK INFORMATION #B 2163
LAST CREATION/CHANGE DATE/ TIME INFORMATION 2154
CELL PLAYBACK INFORMATION #C 2164
LAST CREATION/CHANGE DATE/ TIME INFORMATION 2155
(C)
VIDEO OBJECT INFORMATION #1 2167
LAST CREATION/CHANGE DATE/ TIME INFORMATION 2157
VIDEO OBJECT INFORMATION #2 2168
LAST CREATION/CHANGE DATE/ TIME INFORMATION 2158
VIDEO OBJECT INFORMATION #3 2169
LAST CREATION/CHANGE DATE/ TIME INFORMATION 2159
(D)
LINK INFORMATION #α 2163
LINK INFORMATION #β 2164
LINK INFORMATION #γ 2165
LINK INFORMATION #δ 2166
LINK INFORMATION #ε 2167
(E)
LINK INFORMATION SIZE 2022
LINK IDENTIFICATION INFORMATION 2023
DRIVE MANUFACTURER INFORMATION 2024
FUNCTION INFORMATION 2025
LINK DESTINATION/ SOURCE INFORMATION 2026
TIME INFORMATION 2027
USEABLE CONDITION 2028
(F)
LAST RECORDING TIME (DATE) INFORMATION OF LINK INFORMATION 2061
.....
.....

FIG. 20

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LINK INFORMATION ALLOCATION	DESCRIPTION OF DETAILED CONTENTS	RELATIONSHIP WITH METHOD OF SETTING DESIGNATION LOCATION IN COMMON INFORMATION (CORRESPONDING TO SYMBOLS IN FIG. 21)	EFFECTS (MERITS) OF RESPECTIVE EMBODIMENTS
IN COMMON INFORMATION 2001	ALLOCATE IN PORTION (E.G., IN EDIT CONTROL INFORMATION 1023 LIKE IN EMBODIMENT SHOWN IN FIG. 19) OF COMMON INFORMATION 2001	A, B, C, D	WHEN USER ERRONEOUSLY ERASE COMMON INFORMATION 2001, SINCE LINK INFORMATION IS ERASED TOGETHER, INFORMATION PLAYBACK APPARATUS HARDLY CAUSES OPERATION ERROR

FIG. 22A

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LINK INFORMATION ALLOCATION	DESCRIPTION OF DETAILED CONTENTS	RELATIONSHIP WITH METHOD OF SETTING DESIGNATION LOCATION IN COMMON INFORMATION (CORRESPONDING TO SYMBOLS IN FIG.21)	EFFECTS (MERITS) OF RESPECTIVE EMBODIMENTS
IN SPECIFIC INFORMATION 2002	ALLOCATE IN PORTION OF SPECIFIC INFORMATION 2002 TOGETHER	A, C, D	WHEN USER ERRONEOUSLY ERASES SPECIFIC INFORMATION, SINCE LINK INFORMATION IS ERASED TOGETHER, INFORMATION PLAYBACK APPARATUS HARDLY CAUSES OPERATION ERROR

FIG. 22B

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LINK INFORMATION ALLOCATION	DESCRIPTION OF DETAILED CONTENTS	RELATIONSHIP WITH METHOD OF SETTING DESIGNATION LOCATION IN COMMON INFORMATION (CORRESPONDING TO SYMBOLS IN FIG. 21)	EFFECTS (MERITS) OF RESPECTIVE EMBODIMENTS
ALLOCATE AT ORIGINAL LOCATION (DIFFERENT FROM COMMON INFORMATION 2001 AND SPECIFIC INFORMATION 2002)	ALLOCATE ALL PIECES OF LINK INFORMATION AT ONE LOCATION TOGETHER	A, C, D	LINK INFORMATION IS EASILY MANAGED IN UNITS OF MANUFACTURERS
	ALLOCATE LINK INFORMATION USED IN UNITS OF DRIVE MANUFACTURERS TOGETHER		

FIG. 22C

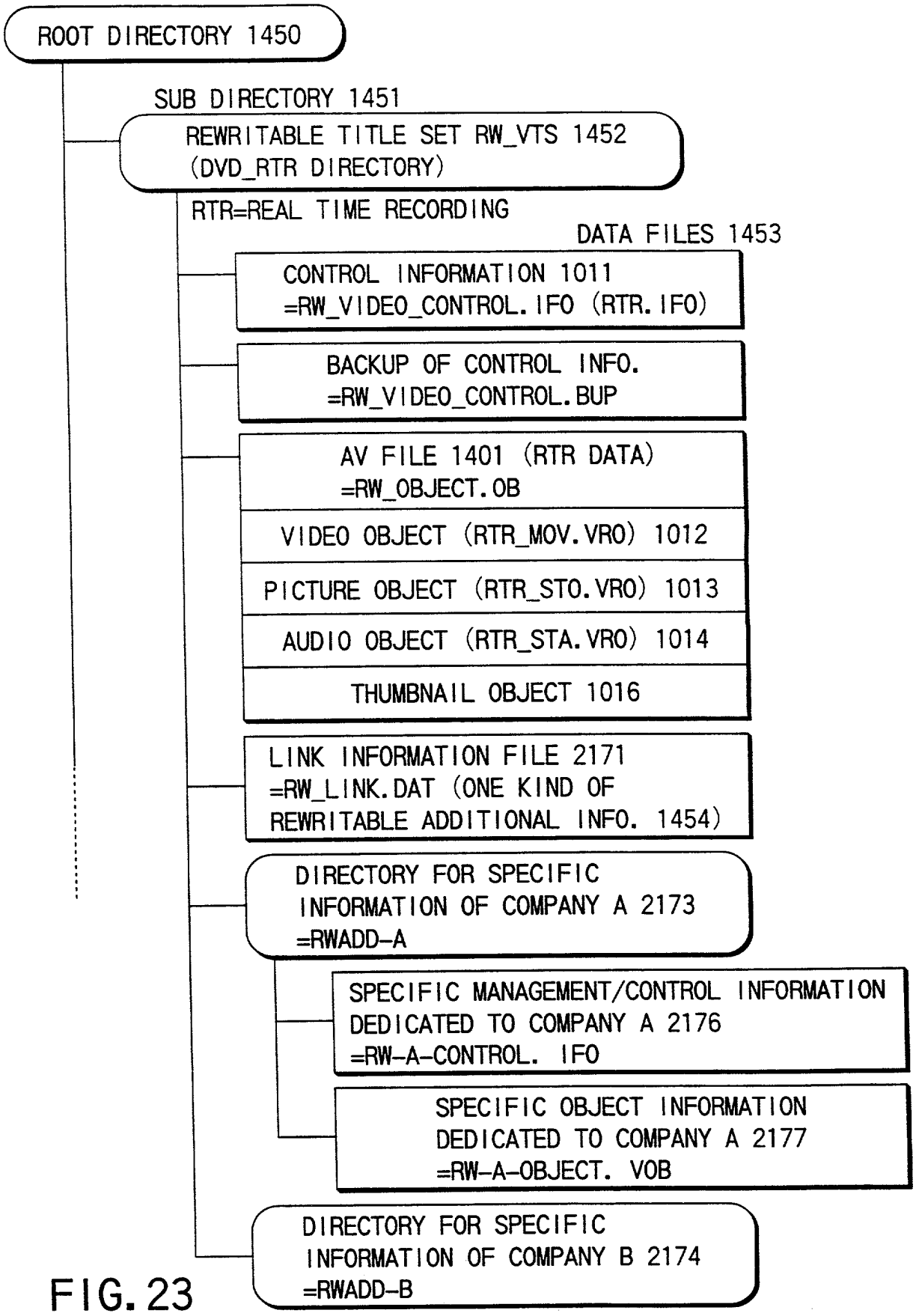
ROOT DIRECTORY 1450
SUB DIRECTORY 1451
REWRITABLE TITLE SET RW_VTS 1452
(DVD_RTR DIRECTORY)
RTR=REAL TIME RECORDING
DATA FILES 1453
CONTROL INFORMATION 1011
=RW_VIDEO_CONTROL.IFO (RTR.IFO)
BACKUP OF CONTROL INFO.
=RW_VIDEO_CONTROL.BUP
AV FILE 1401 (RTR DATA)
=RW_OBJECT.OB
VIDEO OBJECT (RTR_MOV.VRO) 1012
PICTURE OBJECT (RTR_STO.VRO) 1013
AUDIO OBJECT (RTR_STA.VRO) 1014
THUMBNAIL OBJECT 1016
LINK INFORMATION FILE 2171
=RW_LINK.DAT (ONE KIND OF
REWRITABLE ADDITIONAL INFO. 1454)
DIRECTORY FOR SPECIFIC
INFORMATION OF COMPANY A 2173
=RWADD-A
SPECIFIC MANAGEMENT/CONTROL INFORMATION
DEDICATED TO COMPANY A 2176
=RW-A-CONTROL. IFO
SPECIFIC OBJECT INFORMATION
DEDICATED TO COMPANY A 2177
=RW-A-OBJECT. VOB
DIRECTORY FOR SPECIFIC
INFORMATION OF COMPANY B 2174
=RWADD-B

FIG. 23

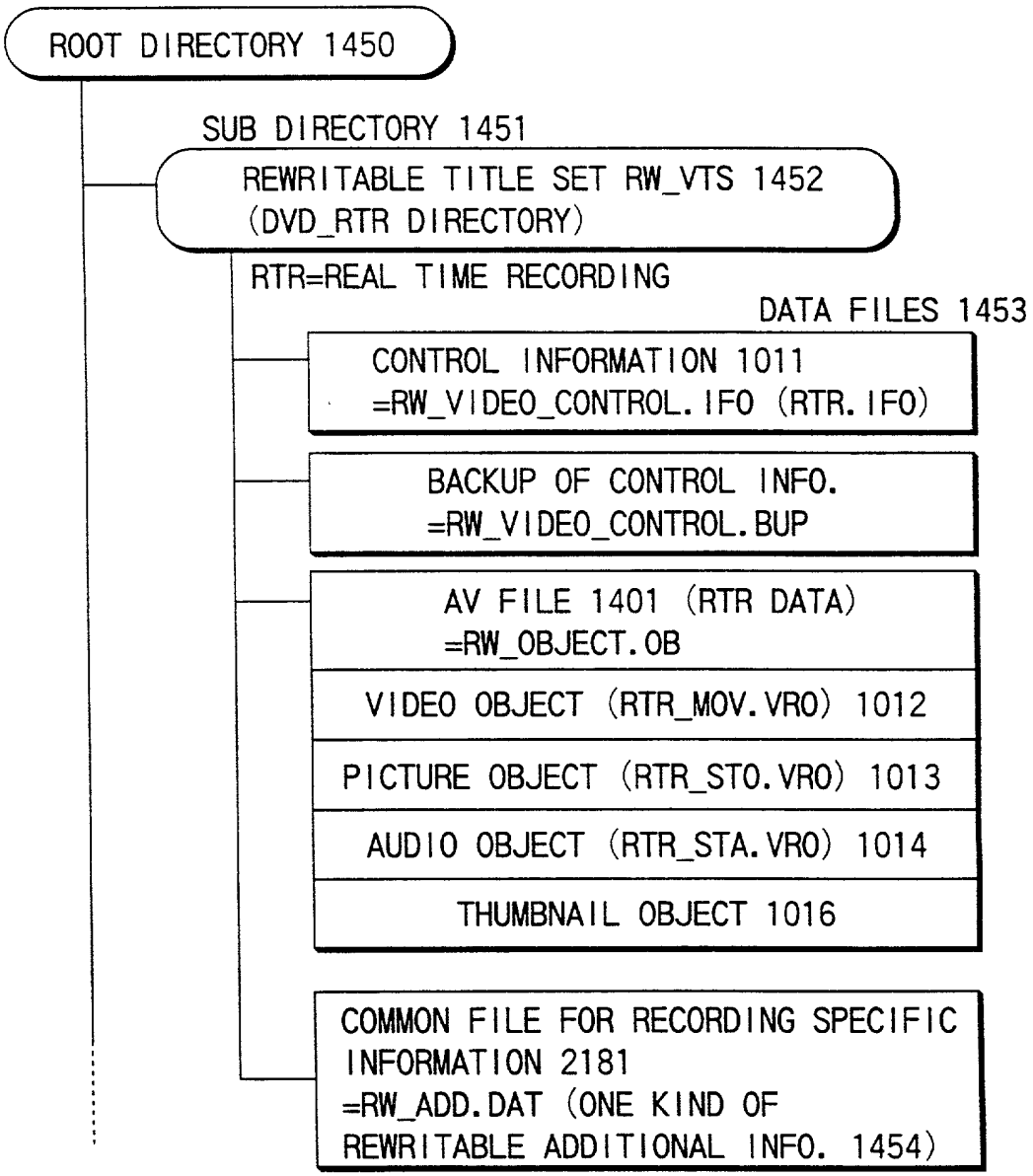
ROOT DIRECTORY 1450
SUB DIRECTORY 1451
REWRITABLE TITLE SET RW_VTS 1452
(DVD_RTR DIRECTORY)
RTR=REAL TIME RECORDING
DATA FILES 1453
CONTROL INFORMATION 1011
=RW_VIDEO_CONTROL.IFO (RTR.IFO)
BACKUP OF CONTROL INFO.
=RW_VIDEO_CONTROL.BUP
AV FILE 1401 (RTR DATA)
=RW_OBJECT.OB
VIDEO OBJECT (RTR_MOV.VRO) 1012
PICTURE OBJECT (RTR_STO.VRO) 1013
AUDIO OBJECT (RTR_STA.VRO) 1014
THUMBNAIL OBJECT 1016
COMMON FILE FOR RECORDING SPECIFIC INFORMATION 2181
=RW_ADD.DAT (ONE KIND OF REWRITABLE ADDITIONAL INFO. 1454)

FIG. 24

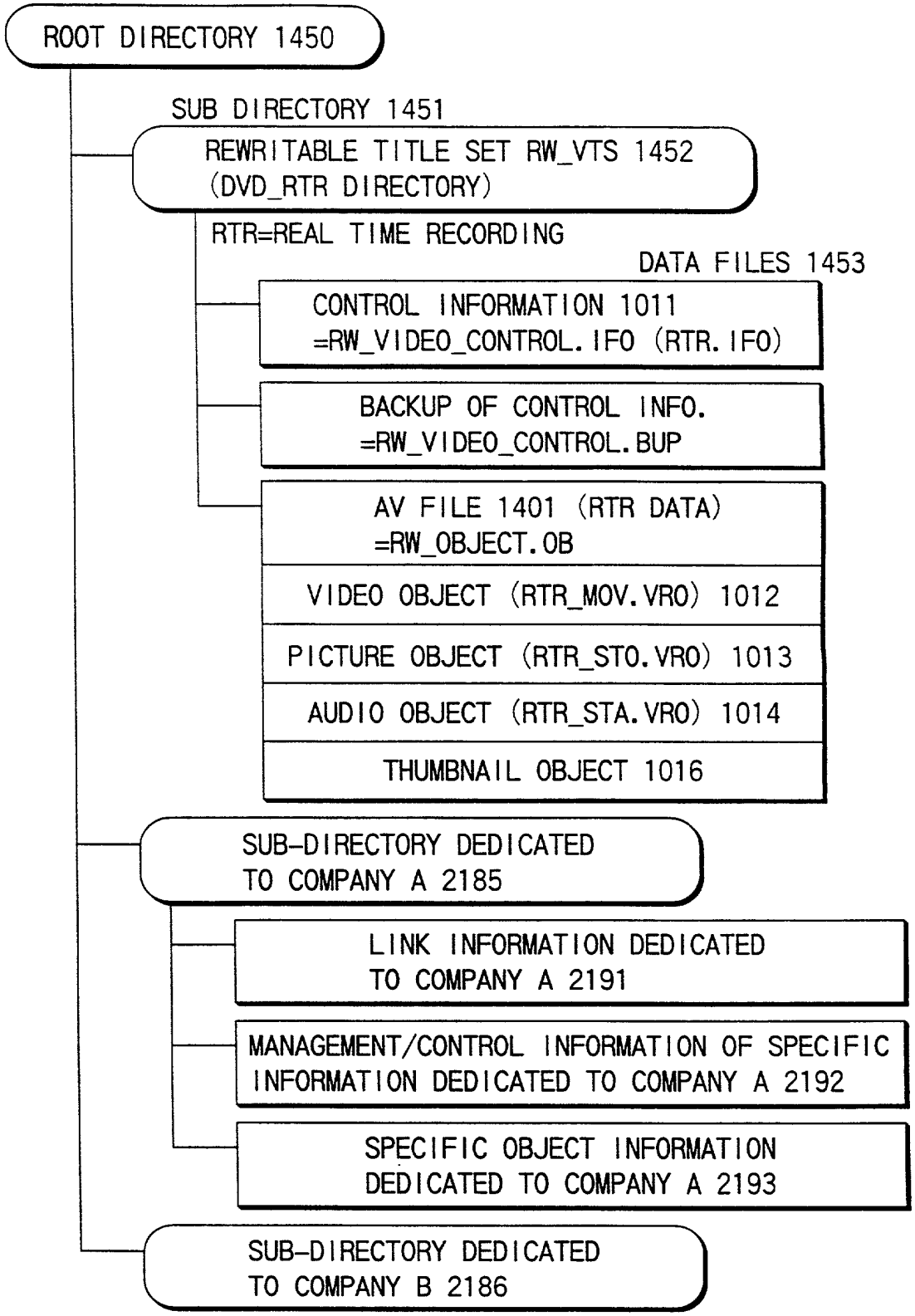
ROOT DIRECTORY 1450
SUB DIRECTORY 1451
REWRITABLE TITLE SET RW_VTS 1452
(DVD_RTR DIRECTORY)
RTR=REAL TIME RECORDING
DATA FILES 1453
CONTROL INFORMATION 1011
=RW_VIDEO_CONTROL.IFO (RTR.IFO)
BACKUP OF CONTROL INFO.
=RW_VIDEO_CONTROL.BUP
AV FILE 1401 (RTR DATA)
=RW_OBJECT.OB
VIDEO OBJECT (RTR_MOV.VRO) 1012
PICTURE OBJECT (RTR_STO.VRO) 1013
AUDIO OBJECT (RTR_STA.VRO) 1014
THUMBNAIL OBJECT 1016
SUB-DIRECTORY DEDICATED
TO COMPANY A 2185
LINK INFORMATION DEDICATED
TO COMPANY A 2191
MANAGEMENT/CONTROL INFORMATION OF SPECIFIC
INFORMATION DEDICATED TO COMPANY A 2192
SPECIFIC OBJECT INFORMATION
DEDICATED TO COMPANY A 2193
SUB-DIRECTORY DEDICATED
TO COMPANY B 2186

FIG. 25

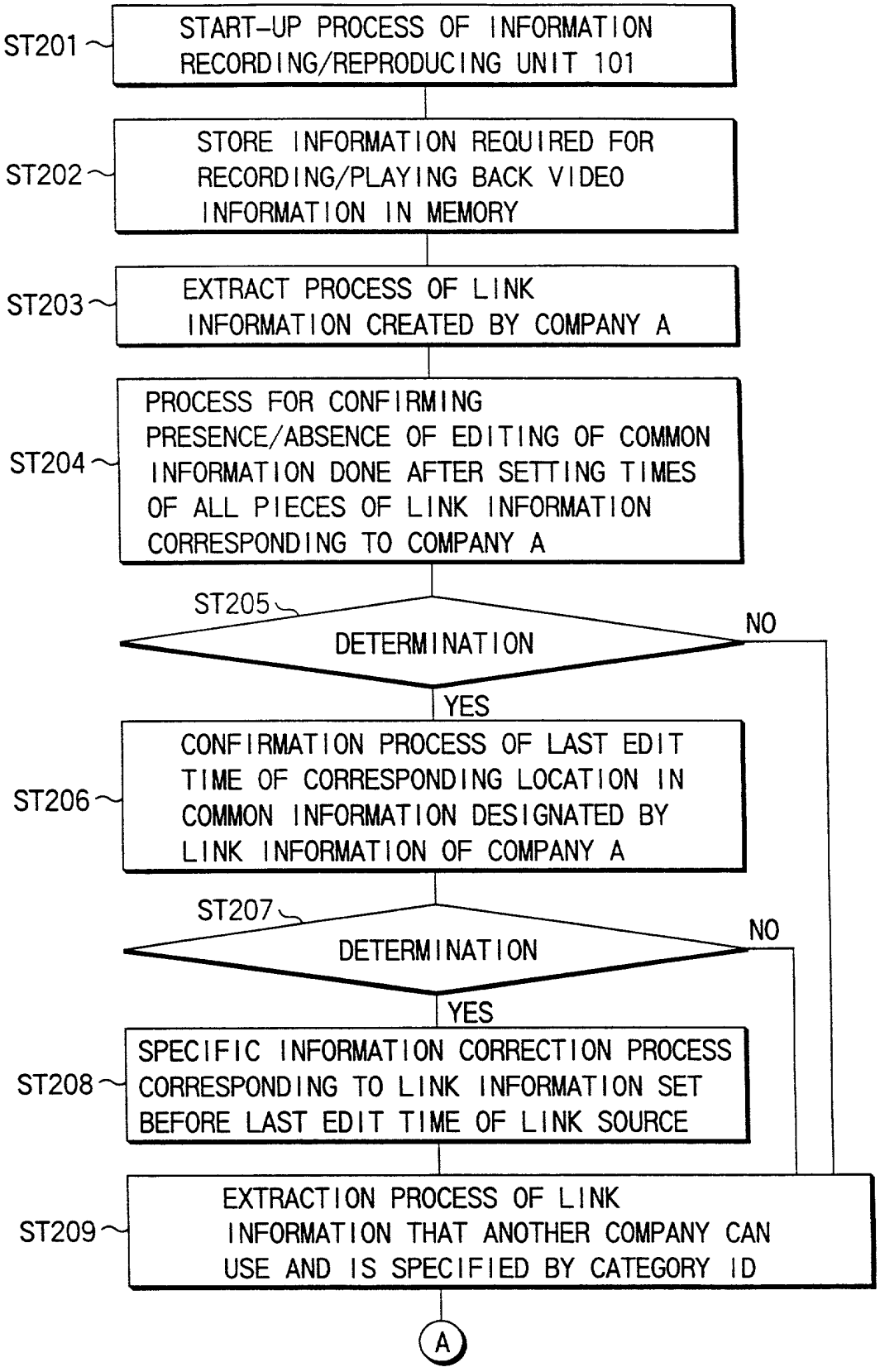
ST201
START-UP PROCESS OF INFORMATION RECORDING/REPRODUCING UNIT 101
ST202
STORE INFORMATION REQUIRED FOR RECORDING/PLAYING BACK VIDEO INFORMATION IN MEMORY
ST203
EXTRACT PROCESS OF LINK INFORMATION CREATED BY COMPANY A
ST204
PROCESS FOR CONFIRMING PRESENCE/ABSENCE OF EDITING OF COMMON INFORMATION DONE AFTER SETTING TIMES OF ALL PIECES OF LINK INFORMATION CORRESPONDING TO COMPANY A
ST205
DETERMINATION
NO
YES
ST206
CONFIRMATION PROCESS OF LAST EDIT TIME OF CORRESPONDING LOCATION IN COMMON INFORMATION DESIGNATED BY LINK INFORMATION OF COMPANY A
ST207
DETERMINATION
NO
YES
ST208
SPECIFIC INFORMATION CORRECTION PROCESS CORRESPONDING TO LINK INFORMATION SET BEFORE LAST EDIT TIME OF LINK SOURCE
ST209
EXTRACTION PROCESS OF LINK INFORMATION THAT ANOTHER COMPANY CAN USE AND IS SPECIFIED BY CATEGORY ID
A

FIG. 26A

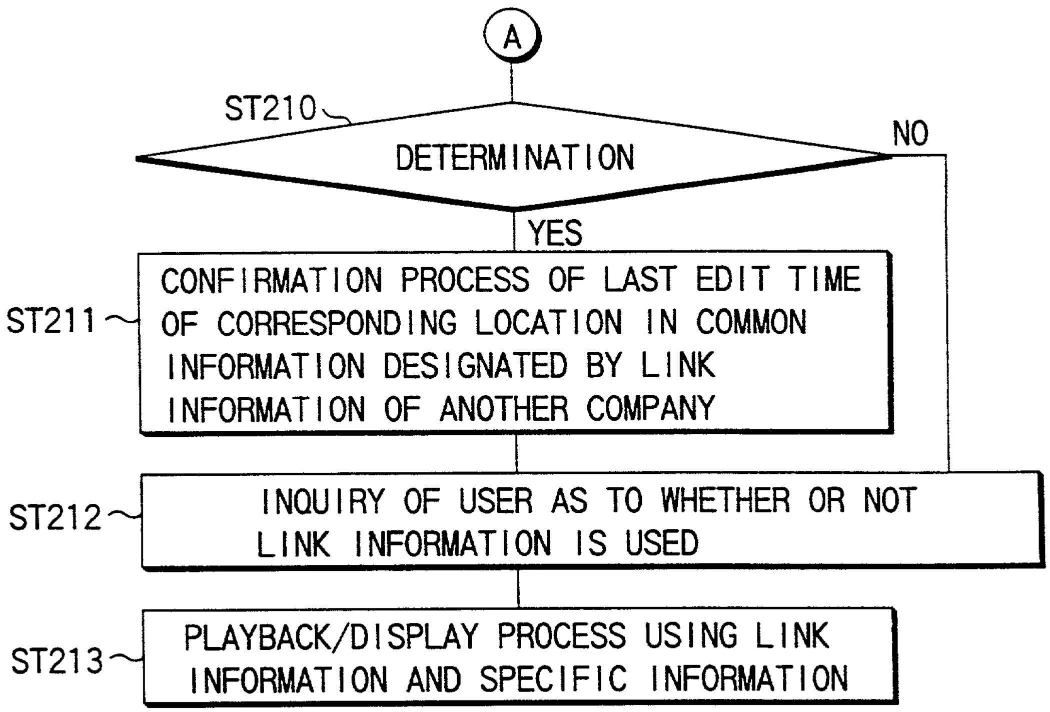

FIG. 26B

09932487.102301

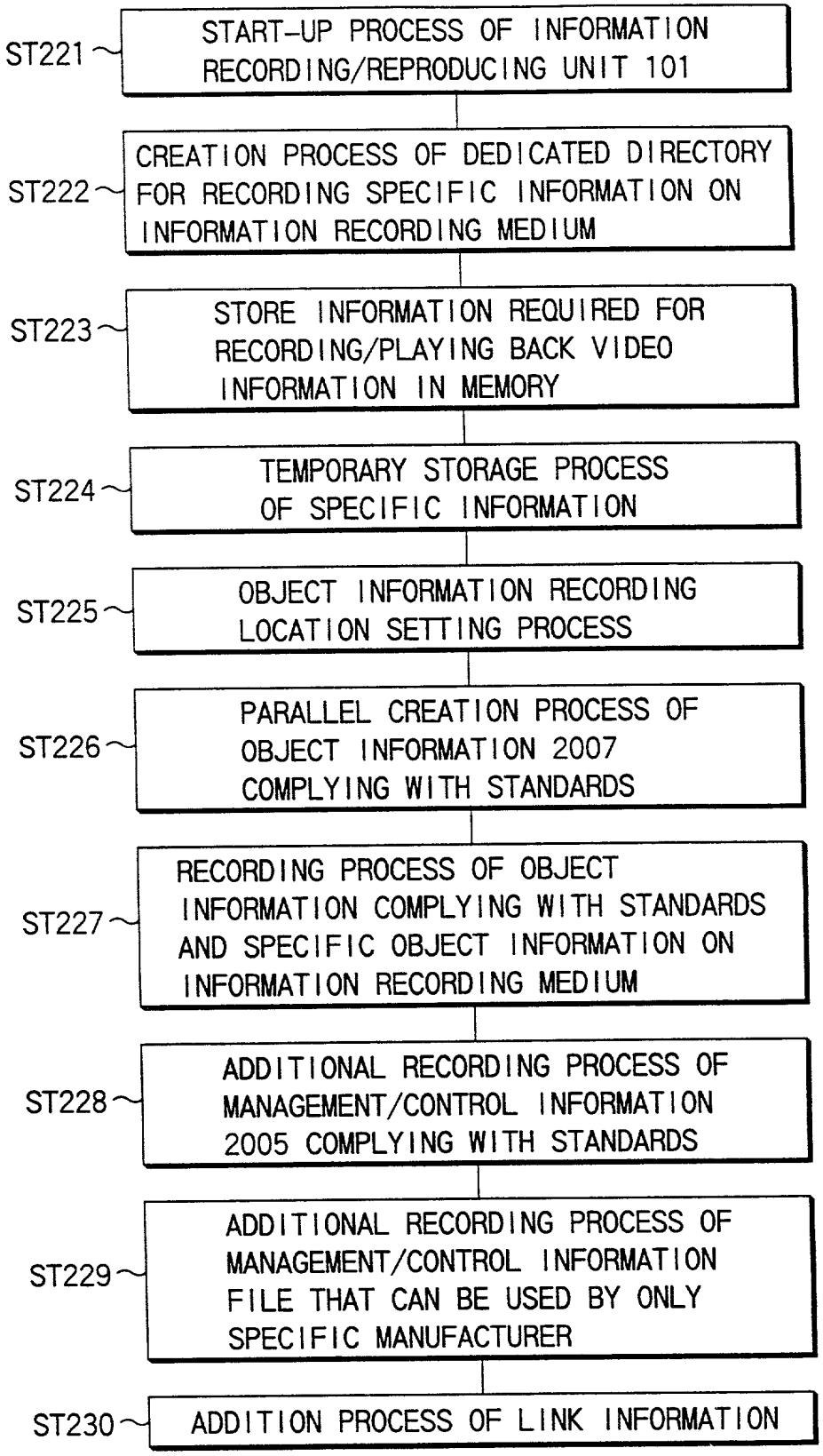
ST221
START-UP PROCESS OF INFORMATION RECORDING/REPRODUCING UNIT 101
ST222
CREATION PROCESS OF DEDICATED DIRECTORY FOR RECORDING SPECIFIC INFORMATION ON INFORMATION RECORDING MEDIUM
ST223
STORE INFORMATION REQUIRED FOR RECORDING/PLAYING BACK VIDEO INFORMATION IN MEMORY
ST224
TEMPORARY STORAGE PROCESS OF SPECIFIC INFORMATION
ST225
OBJECT INFORMATION RECORDING LOCATION SETTING PROCESS
ST226
PARALLEL CREATION PROCESS OF OBJECT INFORMATION 2007 COMPLYING WITH STANDARDS
ST227
RECORDING PROCESS OF OBJECT INFORMATION COMPLYING WITH STANDARDS AND SPECIFIC OBJECT INFORMATION ON INFORMATION RECORDING MEDIUM
ST228
ADDITIONAL RECORDING PROCESS OF MANAGEMENT/CONTROL INFORMATION 2005 COMPLYING WITH STANDARDS
ST229
ADDITIONAL RECORDING PROCESS OF MANAGEMENT/CONTROL INFORMATION FILE THAT CAN BE USED BY ONLY SPECIFIC MANUFACTURER
ST230
ADDITION PROCESS OF LINK INFORMATION

FIG. 27

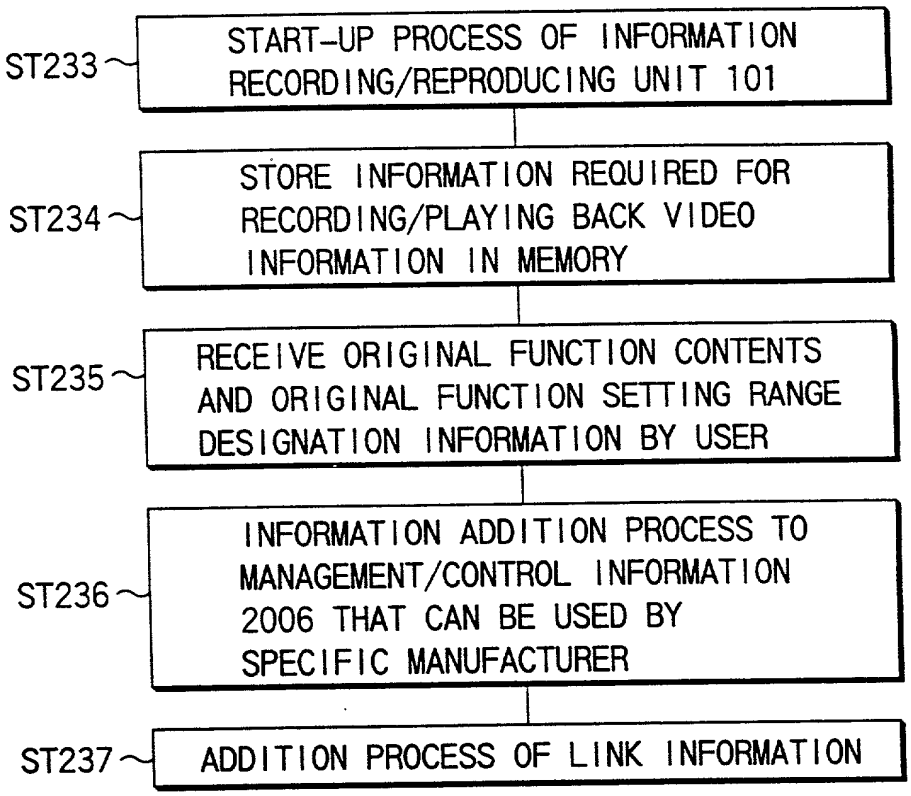
ST233
START-UP PROCESS OF INFORMATION RECORDING/REPRODUCING UNIT 101
ST234
STORE INFORMATION REQUIRED FOR RECORDING/PLAYING BACK VIDEO INFORMATION IN MEMORY
ST235
RECEIVE ORIGINAL FUNCTION CONTENTS AND ORIGINAL FUNCTION SETTING RANGE DESIGNATION INFORMATION BY USER
ST236
INFORMATION ADDITION PROCESS TO MANAGEMENT/CONTROL INFORMATION 2006 THAT CAN BE USED BY SPECIFIC MANUFACTURER
ST237
ADDITION PROCESS OF LINK INFORMATION

FIG. 28

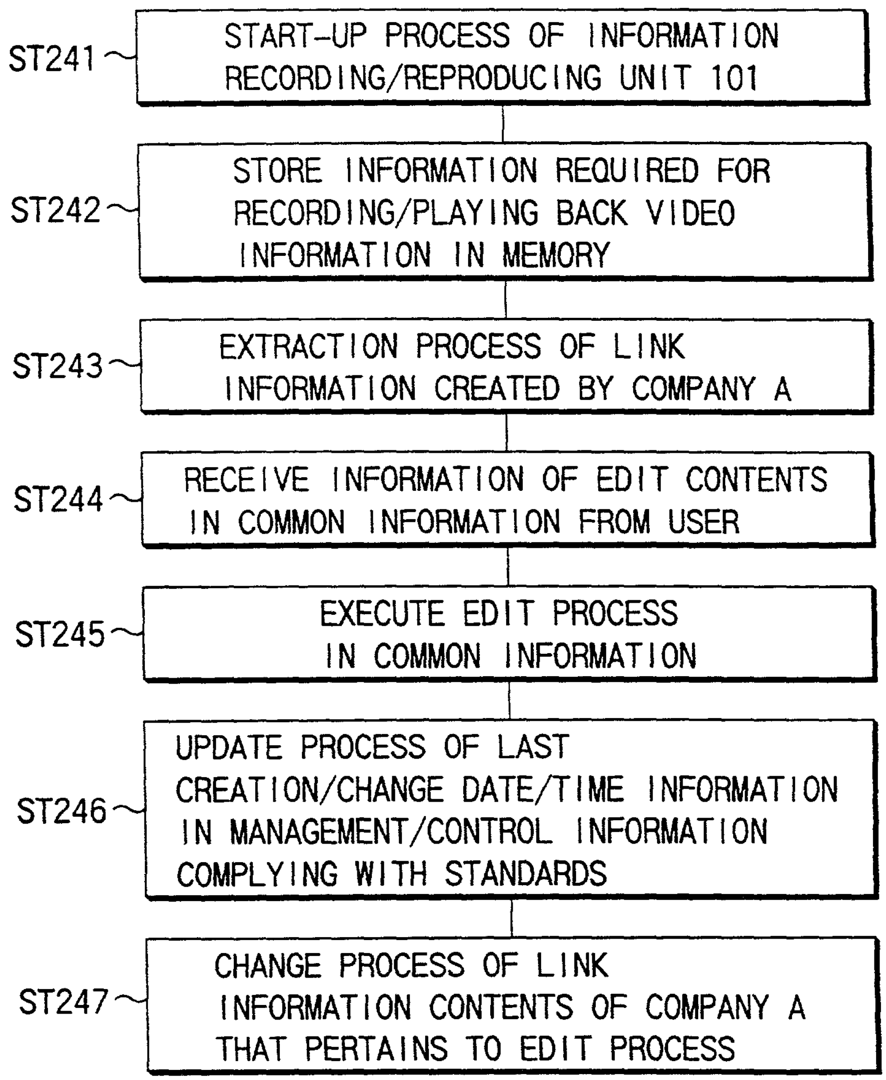
ST241
START-UP PROCESS OF INFORMATION RECORDING/REPRODUCING UNIT 101
ST242
STORE INFORMATION REQUIRED FOR RECORDING/PLAYING BACK VIDEO INFORMATION IN MEMORY
ST243
EXTRACTION PROCESS OF LINK INFORMATION CREATED BY COMPANY A
ST244
RECEIVE INFORMATION OF EDIT CONTENTS IN COMMON INFORMATION FROM USER
ST245
EXECUTE EDIT PROCESS IN COMMON INFORMATION
ST246
UPDATE PROCESS OF LAST CREATION/CHANGE DATE/TIME INFORMATION IN MANAGEMENT/CONTROL INFORMATION COMPLYING WITH STANDARDS
ST247
CHANGE PROCESS OF LINK INFORMATION CONTENTS OF COMPANY A THAT PERTAINS TO EDIT PROCESS

FIG. 29

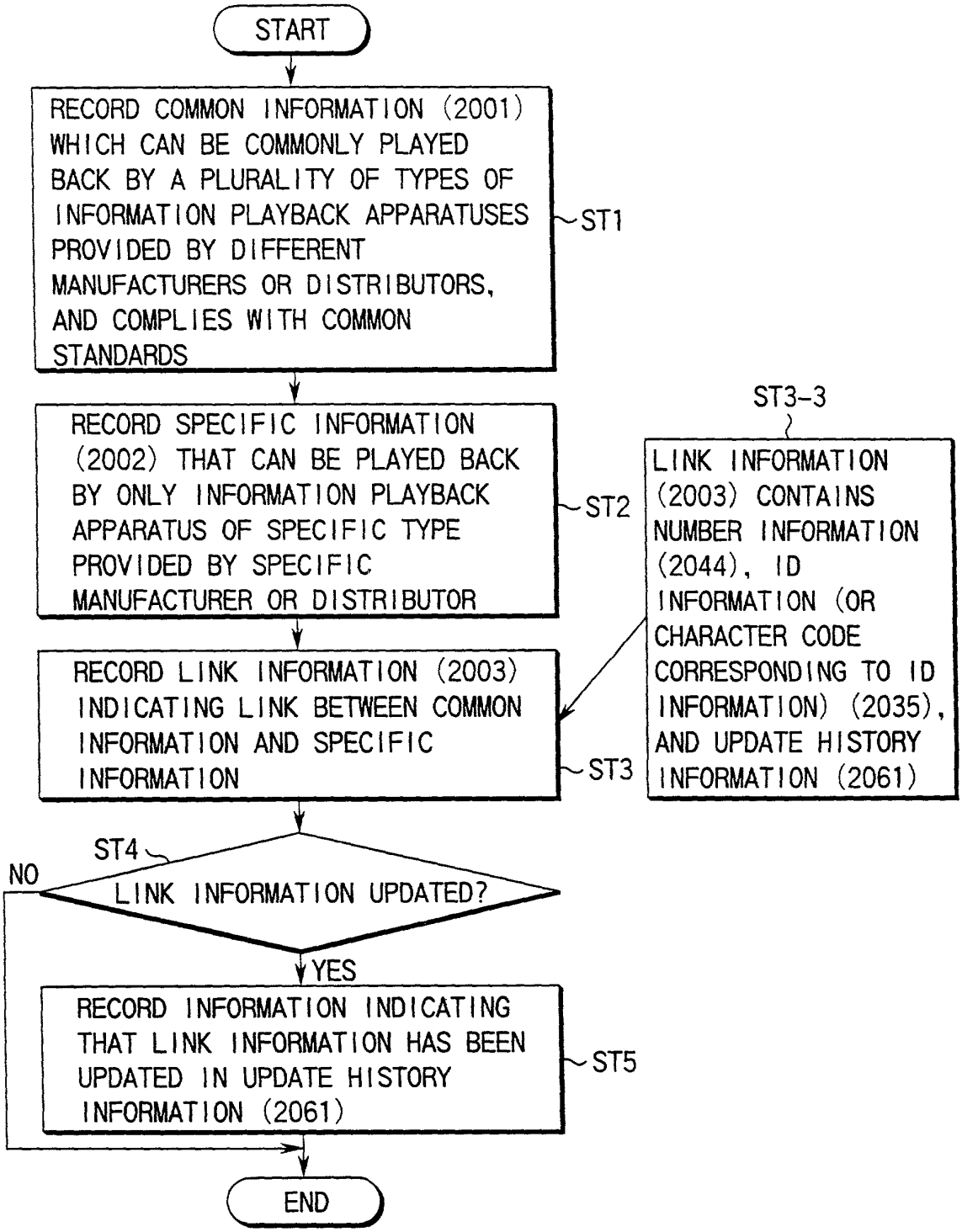
START
RECORD COMMON INFORMATION (2001) WHICH CAN BE COMMONLY PLAYED BACK BY A PLURALITY OF TYPES OF INFORMATION PLAYBACK APPARATUSES PROVIDED BY DIFFERENT MANUFACTURERS OR DISTRIBUTORS, AND COMPLIES WITH COMMON STANDARDS
ST1
RECORD SPECIFIC INFORMATION (2002) THAT CAN BE PLAYED BACK BY ONLY INFORMATION PLAYBACK APPARATUS OF SPECIFIC TYPE PROVIDED BY SPECIFIC MANUFACTURER OR DISTRIBUTOR
ST2
ST3-3
LINK INFORMATION (2003) CONTAINS NUMBER INFORMATION (2044), ID INFORMATION (OR CHARACTER CODE CORRESPONDING TO ID INFORMATION) (2035), AND UPDATE HISTORY INFORMATION (2061)
RECORD LINK INFORMATION (2003) INDICATING LINK BETWEEN COMMON INFORMATION AND SPECIFIC INFORMATION
ST3
ST4
NO
LINK INFORMATION UPDATED?
YES
RECORD INFORMATION INDICATING THAT LINK INFORMATION HAS BEEN UPDATED IN UPDATE HISTORY INFORMATION (2061)
ST5
END

FIG. 30

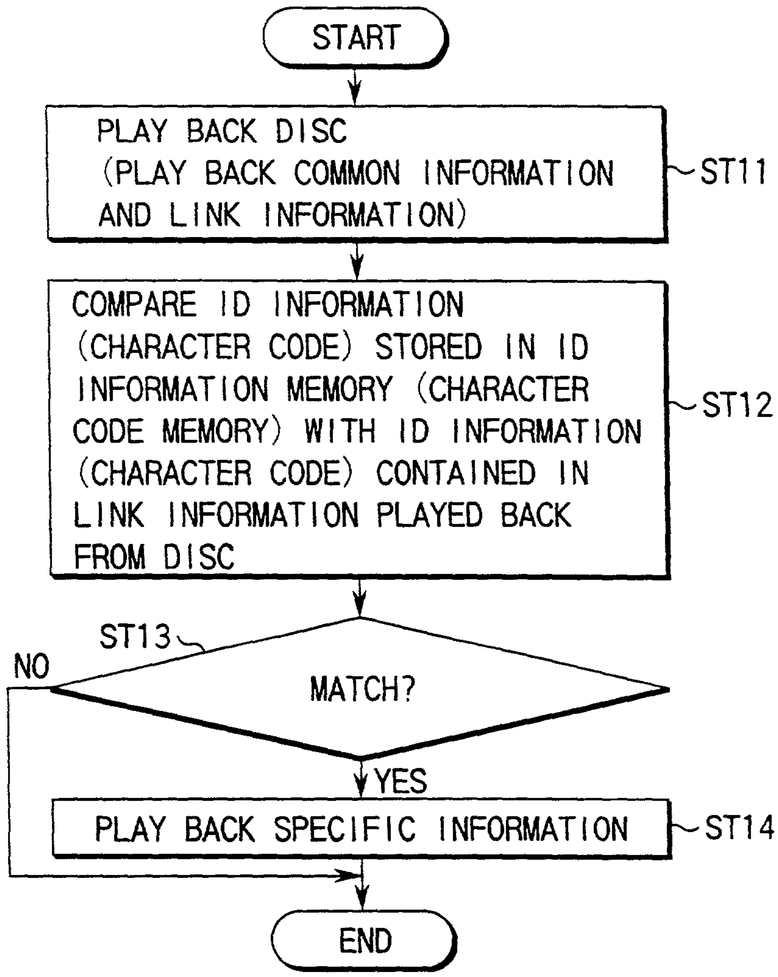

FIG. 31

10562807.030602

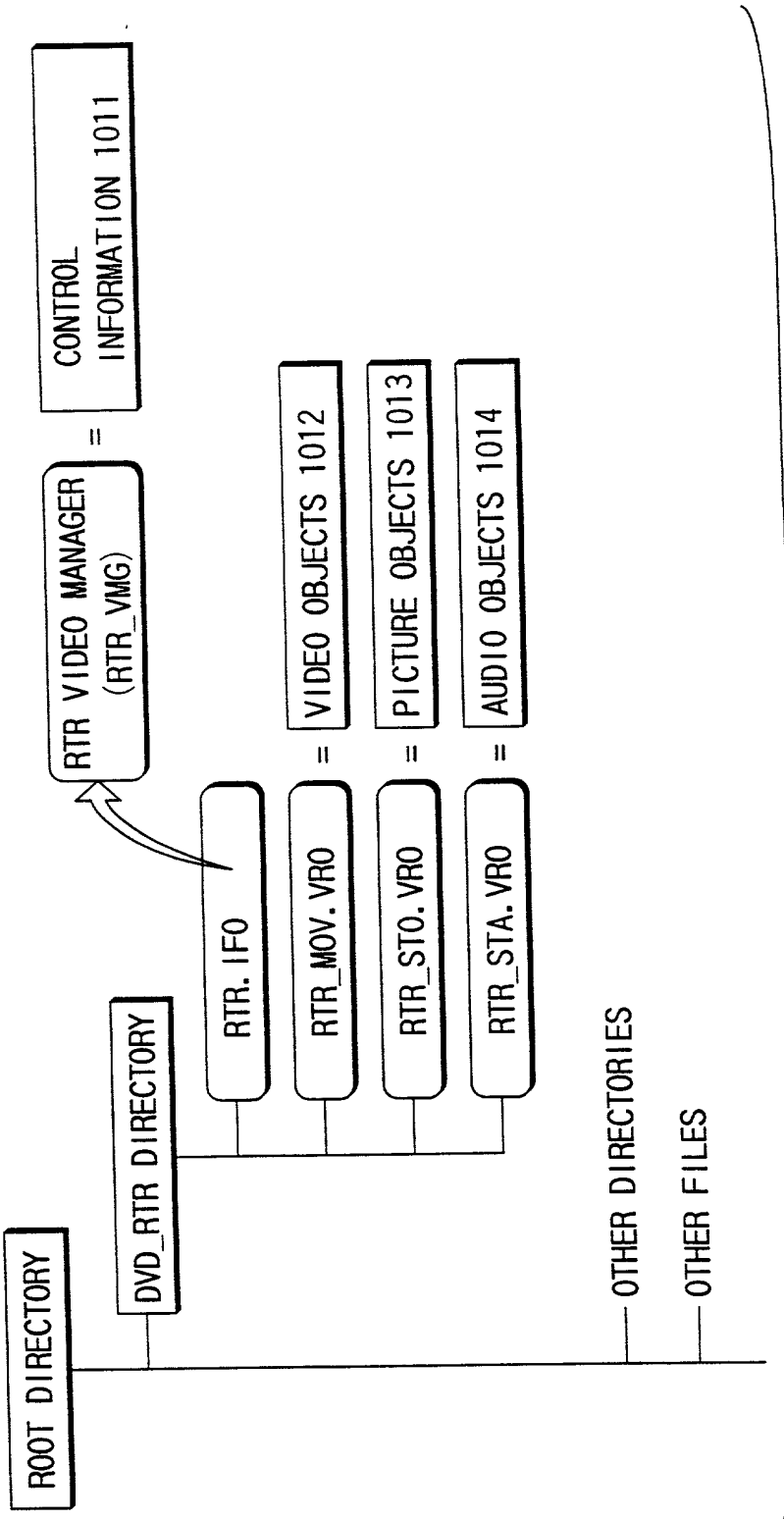
ROOT DIRECTORY
DVD_RTR DIRECTORY
RTR. IFO
RTR_MOV. VRO
RTR_STO. VRO
RTR_STA. VRO
OTHER DIRECTORIES
OTHER FILES
RTR VIDEO MANAGER (RTR_VMG)
=
CONTROL INFORMATION 1011
=
VIDEO OBJECTS 1012
=
PICTURE OBJECTS 1013
=
AUDIO OBJECTS 1014

FIG. 32

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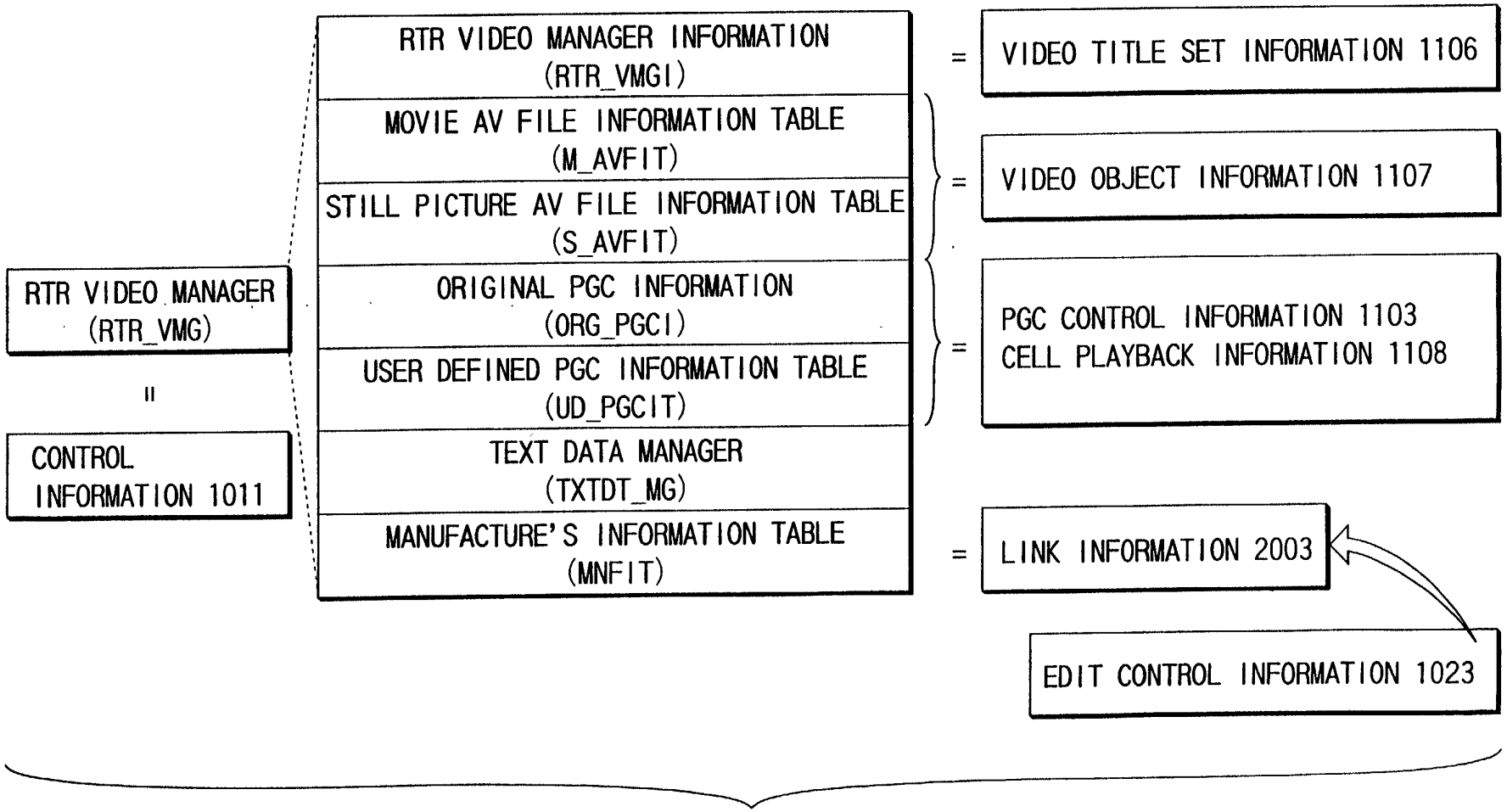

FIG. 33

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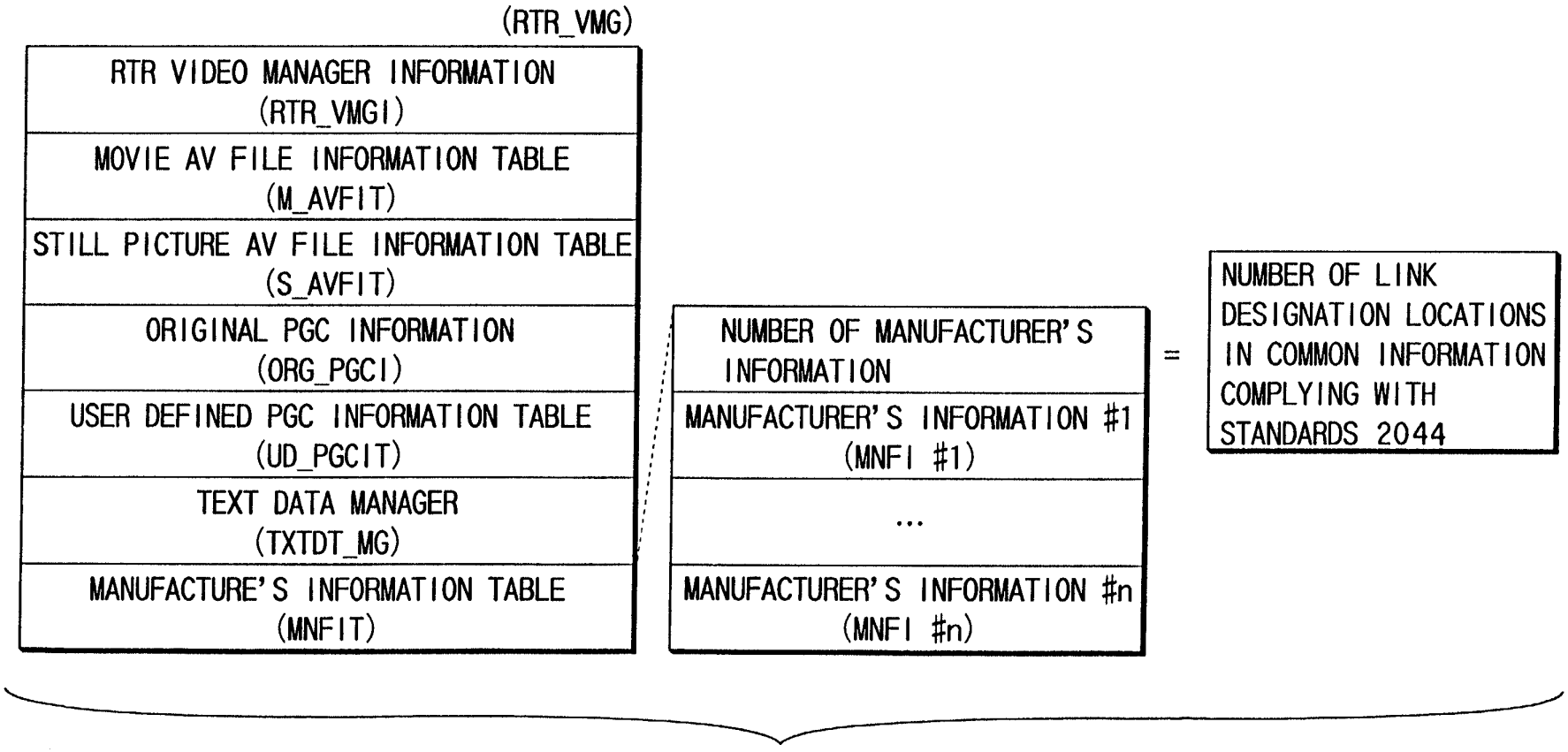

FIG. 34

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RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0 TO 31	MNF_ID	MANUFACTURER ID	32 BYTES
32 TO 36	REC_TM	TIME WHEN THIS MNFI WAS RECORDED	5 BYTES
37 TO -	MNFI_DT	MANUFACTURER'S INFORMATION DATA	VARIABLE LENGTH BYTES
TOTAL			37+VARIABLE LENGTH BYTES

= DRIVE MANUFACTURER ID INFORMATION 2035

= LAST RECORDING/CHANGE TIME (DATE) INFORMATION OF LINK INFORMATION 2061

FIG. 35